

Impact of the COVID-19 Pandemic on Obesity in Children and Adolescents

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ABSTRACT

The outbreak of the COVID-19 pandemic has necessitated a number of restrictions, including movement limitations and the closure of educational establishments. The shift to remote learning and staying at home during the hard times of the pandemic contributed to adverse consequences for children and adolescents. It is reported that during the pandemic there was a significant increase in eating disorders and the problem of overweight and obesity. This has been shown to be related to poor mental health, but also boredom and sedentary lifestyles. The restrictions implemented during the COVID-19 pandemic reduced the transmission of coronavirus. Nevertheless, according to the study, these restrictions exacerbated risk factors for the development of another epidemic - the obesity epidemic. As a result, we are likely to experience an increase in the number of people with obesity-related diseases in the future. However, it is important to remember that overweight and obesity can be combated, but this is more difficult to achieve in adulthood. An attempt should therefore be made to make society aware of the consequences of obesity and overweight. Furthermore, a physically and mentally healthy lifestyle should be promoted among children and adolescents.

KEYWORDS: Children; Adolescents; Obesity; Covid-19; Pandemic

INTRODUCTION

Coronavirus Pandemic Disease 2019 (COVID-19) has caused fundamental changes in many areas of life [1,2]. The rapid increase in the number of infections, the lack of effective drugs, the often-severe course of the disease and the high mortality rate have led to an overburdened health sector. In order to stop the rapid spread of the disease, restrictions were inevitable. These consisted of restricting the operation of many sectors of the economy and closing educational establishments [2-4]. Pandemic COVID-19 has been proven to have a significant impact on the emotional and social development of children and adolescents [4]. Restrictions may have increased rates of childhood obesity [5,6]. For the young population, isolation became a cause of anxiety and fear for the health of themselves and family members. It was also associated with difficulty in making social contacts [7,8]. Sudden isolation from peers, friends and grandparents, as well as the experience of the death of a relative had an impact on emotional disruption and loneliness [4]. Anxiety, irritability, stress, feelings of boredom

and the necessity to stay at home for long periods of time may have contributed to the severity of eating disorders in children and adolescents [5,9]. Compensating for negative emotions, many children have started to consume tasty, highly processed and caloric foods, thus abandoning a properly balanced diet [5,10-12]. The remote learning should also be taken into account, as well as a lack of exercise in leisure time. More time spent in front of the computer/television has also encouraged snacking. The addictive aspects of salty and sweet snacks have been reported by many sources [11,13]. The addiction itself has implications for long-term change in eating habits. Furthermore, overweight and obesity are predicted to worsen in patients diagnosed before the pandemic [14-16]. Difficult access to medical personnel during the COVID-19 pandemic may have delayed the diagnosis and implementation of treatment for patients with eating disorders and obesity. Isolation was also associated with a reduction in the number of follow-up visits, while the number of visits is associated with greater treatment efficacy [14,16,17].

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According to the WHO (World Health Organization), overweight and obesity is, "abnormal or excessive fat accumulation that can harm health" [18]. Childhood obesity is one of the most serious health problems of the 21st century [19]. Even moderate overweight in childhood significantly increases the risk of developing type 2 diabetes and cardiovascular disease in middle age [20]. In obese children, the development of these diseases is even more common and the risk of premature death and disability in adulthood is increased [19,21]. The purpose of this article is to highlight and briefly discuss the growing problem of overweight and obesity in the child and adolescent age group during the COVID-19 pandemic.

MAIN TEXT

Jenssen et al. [6] conducted a large study involving patients aged 2 to 7 years. It included urban, semi-urban and semi-rural centers in the Philadelphia region (PA, USA). The study aimed to compare childhood obesity in the pre-pandemic period and during the COVID-19 pandemic. For this purpose, the period from June to December 2019 (pre-pandemic period) and the period from June to December 2020 (pandemic) were considered as representative months. An increase in the average prevalence of obesity was observed in every age group already at the beginning of the pandemic. On average, the overall prevalence of obesity among the children surveyed increased from 13.7% to 15.4%. The greatest increase occurred in the population of children aged 5 to 9 years - an increase of 2.6% [6].

A study by Yang et al. [22] assessed the change in obesity and overweight rates among Chinese high school students by comparing data from one month before the pandemic (December 2019) with data collected one month after the introduction of lockdown (February 2020). For two months, the percentage of obese people among the study population increased by 2.8%, while the percentage of overweight people increased by 3.7%.

The results of the above studies seem to be in agreement with the hypothesis that the risk of childhood obesity is increased in the out-of-school months [3,15,23,24]. This trend is favored by factors such as reduced physical activity, prolonged sedentary time, increased time spent in front of screens (TV, computer, smartphones etc.), irregular circadian rhythm, poor quality of sleep, snacking (often on sugary or high-fat products), skipping breakfast [3,6,10,15,20]. Children and adolescents appear to be even more vulnerable to the above factors during the COVID-19 pandemic than during the holiday season.

In France, after the introduction of lockdown, a study was conducted which showed that 26.2% of respondents claimed to have lost control over their daily eating habits [5]. This correlated significantly with food consumption to alleviate feelings of emptiness, stress and boredom [5]. The frequent association of eating disorders with mental disorders therefore appears to have been of greater concern during the pandemic, as there was an increase in the number of people reporting mental health problems [5,9,25].

In China, the percentage of adolescents reporting depressive symptoms increased by 22.6% [25]. Such a fact is all the more important given the frequent coexistence of obesity and depression [26]. Taking into account this interdependence of these two diseases, Mediouni et al. [26] proposed the new term "depreobesity". Thus, the negative effects of restrictions on gathering and movement, as well as the shift to distance learning in terms of depressogenic and overweight-promoting effects, may be mutually exacerbating.

The COVID-19 pandemic placed an immediate strain on the health care system. As a result, many mental health and obesity/overweight treatment centers were converted to care for COVID-19 patients. In addition, consultations were restricted to urgent cases [14,25]. Thus, poor access to treatment during the pandemic made diagnosis difficult and probably exacerbated the health problem of children and adolescents with eating disorders and/or obesity diagnosed before the pandemic [14,15].

In their study, Pietrobelli et al. [15] attempted to determine whether factors contributing to weight gain were exacerbated during lockdown. The study included 41 individuals aged between 6 and 18 years. Juxtaposing the 2019 data with data collected after 3 weeks of isolation showed that negative health habits were significantly escalated during the pandemic. Among the food aspects, there was a 27.58% increase in the number of meals consumed per day, a 92.22% increase in the consumption of red meat, a 771.43% increase in the consumption of crisps and a 125% increase in the consumption of sugary drinks [15]. In terms of physical activity, there was a significant increase in time spent in front of a screen and a decrease in time spent exercising [15].

Similarly, Ruiz-Roso et al. [27] in their study demonstrated that during COVID-19 physical activity levels decreased and consumption of ultra-processed foods increased among adolescents. It has been speculated that decreased physical activity may exacerbate depressive symptoms in children [25]. The fact that poor mental health may contribute to the development of overweight and obesity has already been mentioned. Thus, it seems reasonable to view these phenomena as a self-perpetuating vicious circle.

WHO data from before the COVID-19 pandemic indicated a worrying state of overweight and childhood obesity rates [18]. During the pandemic, when the effects contributing to overweight were exacerbated, obesity rates in children and adolescents appear to have worsened even further [28]. The health consequences of childhood obesity span multiple systems [29,30]. An elevated BMI (body mass index) is recognized by WHO as a major risk factor for non-communicable diseases such as cardiovascular disease, musculoskeletal disease, diabetes or malignancy [18,20]. Usually, cardiovascular complications of obesity occur in later life. However, pathological changes in the form of atherosclerosis, left ventricular hypertrophy or hypertension can already be observed in childhood [30-32]. Furthermore, obesity causes harmful consequences including pulmonary, orthopedic, endocrinological, immunological and gastroenterological, as well as psychological effects [18,20,29]. Figure 1 shows the main factors associated with the COVID-19 pandemic that contribute to the increased problem of overweight and obesity in children and adolescents.

CONCLUSION

Available research shows that the COVID-19 pandemic increased risk factors for childhood overweight and obesity. Children and adolescents forced to stay at home consumed more highly processed foods and more sweetened drinks. This, combined with reduced physical activity, was associated with weight gain. Psychological aspects such as feelings of emptiness, anxiety, fear, loneliness and boredom, which were often compensated by eating, may have an indirect effect on the increased rates of overweight and obesity in this population. Particular attention should be paid to the fact that health habits acquired in childhood, including nutritional and physical activity habits, may be maintained in later life. As a result, unfavorable habits can exacerbate the development of serious diseases affecting, among others, the cardiovascular and

respiratory systems. They may also be associated with an increased risk of cancer and diabetes. Often, obese children become obese adults, and as is generally known, obesity is more difficult to treat in adulthood.

Before the COVID-19 pandemic, obesity and overweight among children and adolescents was a global problem. The problem began to grow more rapidly during the pandemic. It is therefore necessary to take decisive steps to raise public awareness of the scale of the problem of overweight and obesity. It is difficult to require parents to

have constant control over their children's meals. Nevertheless, they should consciously buy products and limit highly processed snacks, sweetened drinks and other high-calorie foods. It is important that people struggling with eating disorders, overweight, obesity and mental health problems have continued access to treatment, such as through telemedicine. Online discussions with school psychologists can also be helpful and should be easily accessible. In addition, children and young people should be encouraged to be more physically active. During a pandemic, exercise can be done at home, for example, in the form of play.

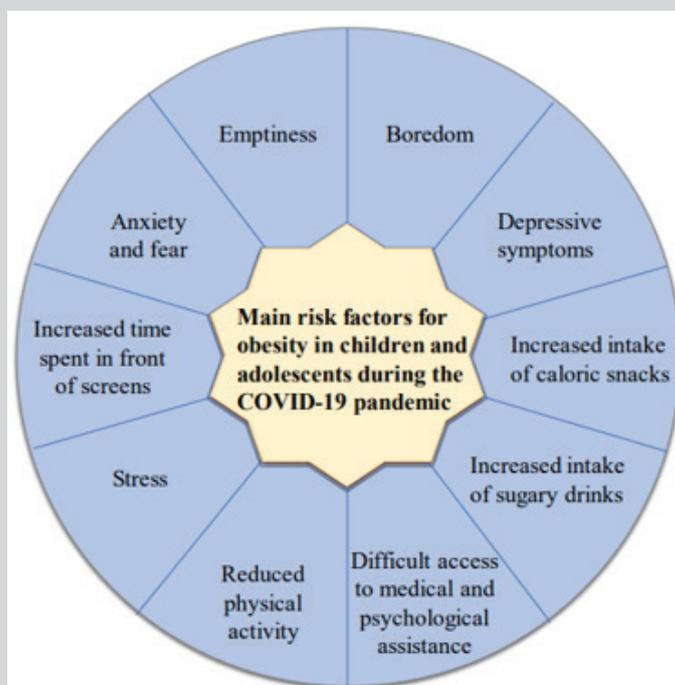


Figure 1: Factors contributing to the increased problem of obesity in children and adolescents during the COVID-19 pandemic.

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