

# COVID-19 pandemic accelerates children's weight gain, BMI

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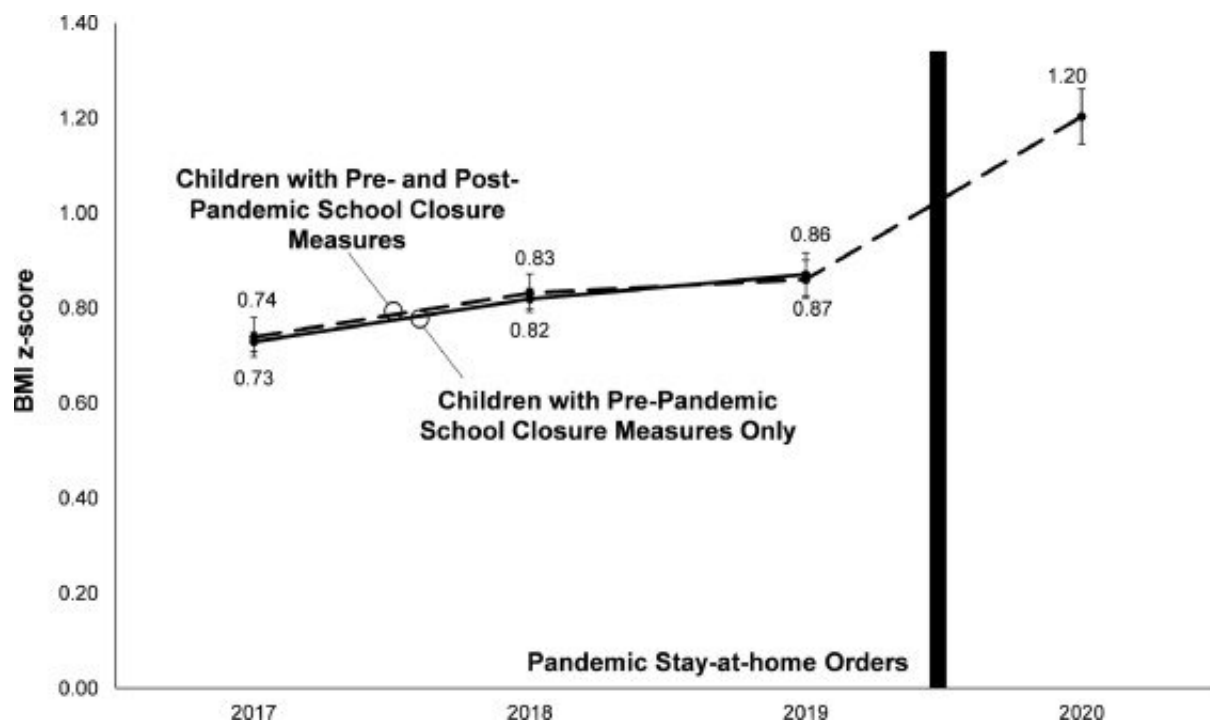


Figure 1. Model estimated the BMI z-score of participants before and after the pandemic school closures. Credit: DOI: 10.1016/j.amepre.2021.04.007

A study led by researchers at the University of South Carolina's Department of Exercise Science has found increases in body mass index (BMI) scores among school-age children. Likely a result of school closures, food insecurity and fewer outdoor activity opportunities, the authors discuss the unhealthy trend in weight gain among children in the *American Journal of Preventive Medicine*.

"The COVID-19 pandemic has introduced a variety of significant disruptions to individuals' lifestyles that could negatively impact children's health behaviors and weight status," says Glenn Weaver, assistant professor of exercise science and lead author on the study.

The researchers outline several factors that have likely contributed to this trend: stay-at-home orders that reduce opportunities for outdoor play while increasing screen time; rising levels of [food insecurity](#) (as much as 35 percent) coupled with a growing reliance on shelf-stable, ultra-processed foods; and a lack of structured days (at school/[summer camp](#)). These factors have been previously linked to obesity risk in children.

Weaver and his colleagues at the [Arnold Childhood Obesity Initiative](#) research group are particularly interested in how the presence or absence of a structured day affects children's health. Through their National Institutes of Health-funded studies, they have found that the structured days offered at school and summer programming offer a greater number of opportunities to engage in healthy behaviors.

The preplanned, compulsory, adult-supervised activities provided by schools positively impact children's sleep, diet, physical activity and screen time behaviors—all of which affect children's weight. For example, variable/late sleep schedules have been linked to obesity. Further, a lack of access to school meals exacerbates [food](#) insecurity and children's dependence on processed foods. Additional research has shown that children's BMI gain accelerates during summer vacation from school due to the same factors.

The team examined the BMI changes in more than 1,700 elementary school children across three schools in the same district. They found an acceleration in BMI changes that was 10 times greater during the COVID-19 pandemic than in previous years, with the increase seen across children of different racial groups, grade levels and sexes. The

authors note that the accelerated changes in BMI translate to an increased risk of becoming overweight or obese.

"Although there are a variety of reasons that children's BMI gain increased during the COVID-19 pandemic, the closure of the [school](#) buildings was likely a major driver of these increases," says Weaver, who notes that preliminary reports indicate that during the pandemic, children have become more sedentary and less physically active, eat more unhealthy and fewer healthy foods, experience later and more variable sleep schedules, and engage in more [screen time](#).

"The impact of the COVID-19 pandemic on children's BMI was not unexpected, but the magnitude of the acceleration in change is alarming and supports the urgent need for public health interventions to address overweight and obesity, especially in children from minority and low-income families."

**More information:** R. Glenn Weaver et al, COVID-19 Leads to Accelerated Increases in Children's BMI z-Score Gain: An Interrupted Time-Series Study, *American Journal of Preventive Medicine* (2021). [DOI: 10.1016/j.amepre.2021.04.007](https://doi.org/10.1016/j.amepre.2021.04.007)

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