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Child height figures show effects of covid, obesity, and inequality

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Narrowing inequalities in child height may mask widening inequalities in obesity

Data from England's national child measurement programme (NCMP) show an unprecedented jump in mean height during school year 2020-21 compared with 2019-20.¹ In 5 year olds mean height increased by 0.5 cm in boys and 0.4 cm in girls, compared with the 0.2 cm rise seen over the previous 10 years from 2009 to 2019. The increase among 11 year olds was even greater, with rises of 1.4 cm in boys and 0.8 cm in girls from 2019-20 to 2020-21, compared with 0.7 cm over the previous 10 years [Q to A so hasn't changed for girls? Same for both sexes at both ages].

The long term trends in mean height show the greatest increases among children living in the most deprived circumstances, narrowing height inequalities. This looks like good news. Socioeconomic inequalities in child height have long been recognised, with poorer children tending to be shorter than their more affluent peers, reflecting the many social determinants of child growth, including diet, illness, psychosocial stress, and environment.^{2 3 4 5} Child height has been considered an important influence on adult health and wellbeing.^{6 7} Historically, child height has increased as social conditions improved in the UK⁸ and worldwide.⁹

Influence of obesity

But our perceptions might be reshaped by the sharp increase in child height in England that occurred during the covid pandemic, alongside a spike in child obesity. From 2019-20 to

2020-21 obesity prevalence rose by 30-53% among 5 year olds and by 23-30% among 11 year olds during a time of school closures, reduced physical activity,¹⁰ and less healthy eating habits.^{11 12} Studies suggest similar trends in child obesity and height in the context of covid lockdowns in other countries.^{13 14}

Lifestyle changes during the pandemic explain the spike in obesity and may also explain the increase in child height. Obesity is associated with accelerated linear growth during childhood, and compared with their healthier weight peers, children with obesity tend to be more developmentally advanced and hence taller. However, they stop growing earlier, end up shorter as adults,²¹ and have an increased risk of morbidity and mortality in later life.^{15 16 17 18} The covid induced rise in adiposity may have accelerated the rate of growth through hormonal pathways, leading to the observed jump in height.

The association of increased child obesity and accelerated growth seen during covid has relevance for interpreting longer term trends in child height. When childhood obesity [**Q to A OK? give year?**] was at its peak in 2020/21, the prevalence among 5 year olds in the most deprived areas of England was more than twice that in the least deprived areas (20.3% v 7.8%). Among 11 year olds the obesity gap was even greater (33.8% v 14.3%). And the difference has been widening over time. Meanwhile, child height has increased in England since 2009, with overall height rises being driven by rises among more deprived children. This raises the question of whether the height rises reflect increasing obesity rather than better overall health.

A longitudinal study of the NCMP obesity data suggests the pandemic changes were real rather than the result of sampling bias.¹⁹ The NCMP's large dataset of 1 million children provides high precision, enabling detection of average height changes with a standard error as small as 1 mm. The pandemic caused challenges with data collection, including measurement delays and reduced participation. Delays were accounted for using age standardisation to adjust each child's height to their 5th or 11th birthday. Reduced participation introduced the possibility of sampling bias, but this seems unlikely to explain the results since the same trends in obesity and height were seen across all deprivation deciles, most ethnic groups, and many local authorities (including, notably, those that achieved participation rates similar to previous years).

Further research is required into the interactions of obesity, height, and health during childhood and beyond, but it seems that height alone may not be a reliable indicator of child health when obesity is prevalent and increasing. This has relevance for interpreting global trends, especially among populations experiencing the double burden of child undernutrition

and obesity. Recognising how and why child growth patterns are changing is necessary for understanding changes in child health and inequalities. Child height data for England also suggest the continuing importance of population level policies tackling child obesity, particularly in ways that will most benefit those who are most deprived. This may include making healthy dietary and exercise options more accessible and affordable—through greater regulation of the food industry²⁰ and safer active travel strategies,²¹ for example—but also policies to make the most deprived children less deprived.

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<eref>1 Office for Health Improvement & Disparities. Obesity profile: statistical commentary on patterns and trends in child height, February 2025. 2025. <https://www.gov.uk/government/statistics/obesity-profile-february-2025-update/obesity-profile-statistical-commentary-on-patterns-and-trends-in-child-height-february-2025></eref>

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