Trends in childhood height and weight, and socioeconomic inequalities

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See Editorial page e153
See Articles page e194

Childhood obesity is a global public health problem. In England, UK, more than a third of children leave primary school overweight or obese.[1] Being obese in childhood increases the chance of being obese as an adult and doubles the risk of dying prematurely.[2] The cost of obesity to the National Health Service (NHS) in England alone is estimated to be £6·1 billion annually.[3] Evidence suggests that prevalence of childhood obesity is strongly correlated with socioeconomic status and is highest among children living in the most deprived areas. A child living in the most deprived 10% of areas in England today is more than twice as likely to be obese than a child living in the least deprived 10% of areas in England. Even more alarming is the widening inequality in childhood obesity, with rates of obesity in those aged 10–11 years improving or remaining relatively stable among less deprived communities and increasing in the most deprived communities.[1] Surveillance of childhood obesity is essential in understanding the nature of the problem and monitoring the effectiveness of public policy.

In *The Lancet Public Health*, David Bann and colleagues[4] investigate how height, weight, and body-mass index (BMI) have changed between 1953 and 2015 using data from four British birth cohort studies of children born in 1946, 1958, 1970, and 2001. In addition to changes in socioeconomic inequalities over time, they assess changes from childhood to adolescence (at age 7 years, 11 years, and 15 years) in each cohort. One interesting aspect of this study is the analysis of the individual components of body-mass index (BMI)—ie, height and weight—separately and over a long period of time. Much of the current evidence for trends in BMI comes from cross-sectional studies, which limit the understanding of what happens across childhood and at what age inequalities emerge and widen. Bann and colleagues[4] conclude that in the late 20th and early 21st centuries, socioeconomic inequalities in weight reversed (ie, lower socioeconomic position was associated with lower weights in the 1946, 1958, and 1970 cohorts but in the 2001 cohort it was associated with higher weight) and those in height narrowed as people from lower socioeconomic groups have got taller, whereas inequalities in BMI and obesity emerged and widened. In the cohorts before 2001, lower socioeconomic position was associated with lower weight and inequalities did not systematically differ by age until the 2001 cohort in which weight and BMI inequalities widened at older ages.

In England, the National Child Measurement Programme (NCMP), which began in 2006, provides annual surveillance of children's weight status at ages 4–5 years and 10–11 years.[1] The data are widely used nationally and locally to inform action to tackle childhood obesity. Importantly, feedback from the NCMP provides an opportunity to engage with children, families, and schools about the importance of healthy weight. Response rates to the NCMP are at an all-time high of 95%, with 17 000 schools involved and more than a million children weighed and measured each year. Although longitudinal tracking analysis is currently only possible at a local level, from 2019 it will be possible at a national level when children aged 4–5 years whose NHS number was included in 2013–14 will reach the age of 10–11 years and be remeasured. This analysis will provide a unique opportunity to understand how and why obesity develops over the course of a child's life and, through linking with other child and maternal datasets, the risk factors driving obesity and protective factors that prevent the shift from normal to overweight and beyond.

Bann and colleagues[4] acknowledge that one of the limitations of this study is ethnic diversity in their analysis of historical cohorts. Today, children from most minority ethnic groups—particularly black African, Caribbean, and Pakistani children—in England are more likely to be obese than white British children.[1]

As Bann and colleagues noted, new and effective policies are required to reduce BMI inequalities. Obesity is a complex problem that requires system-wide action. There is no doubt that changes in dietary intake and eating habits since the 1970s are contributing to childhood obesity. This dietary change might be compounded by evidence of more sedentary behaviours in children and young people. As part of the UK Government's childhood obesity plan,[5] we have seen the launch of a national sugar reduction programme to remove 20% of sugar from the products that children

eat the most, the soft drinks industry levy[6] to encourage producers and importers of sugary soft drinks to remove added sugar, and the publication of a calorie reduction programme[7] to reduce 20% of calories from everyday foods over a 5-year period. Through this plan and further action to address the environment that is encouraging people to buy and eat more, as well as better understanding of what works at both societal and individual levels to reduce and prevent obesity, we hopefully will begin to see a stabilisation and eventually a reversal in the rising trends and increasing inequality observed in the past seven decades by the authors of this study.

Clare Perkins, Eustace DeSousa
Health Improvement Directorate, Public Health England, London SE1 8UG, UK
clare.perkins@phe.gov.uk

We declare no competing interests.

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