New insights on risks associated with early adulthood BMI call for more evidence and earlier action

Even though the overall prevalence of obesity is increasing worldwide, its greatest growth rate is in the early stages of adulthood.[1] Among Chinese people aged between 18 years and 29 years, the prevalence of obesity (BMI ≥30 kg/m²) almost tripled from 2004 to 2018.[2]

In their Article,[3] Yuanyuan Chen and colleagues investigated the association between BMI at age 25 years and the incidence of cardiovascular diseases in a cohort of roughly 0·5 million Chinese adults aged 30–79 years. The authors found a monotonic relationship between early adult BMI and the risk of cardiovascular disease incidence. Participants in the highest BMI group in early adulthood (BMI >30 kg/m²) had a 58% higher risk of incident cardiovascular disease than those with typical weight (BMI 20·5–22·4 kg/m²).[3] The monotonic relationship held true for all subtypes of cardiovascular disease, including ischaemic heart disease, ischaemic stroke, and haemorrhagic stroke. Furthermore, healthy midlife lifestyles had no effect on the association between early adulthood BMI and cardiovascular disease risk.[3]

Given the study's remarkable sample size and thorough analysis, it provides robust evidence for the burden of obesity in young adults, and suggests that primary prevention of cardiovascular disease requires a focus on early weight management, as the beneficial effect of subsequent healthy lifestyles did not appear to be as influential in considerably reducing risk. To reduce the prevalence of early adulthood obesity, policy makers and health professionals need to look at intervention at even earlier stages of life due to a strong association with weight trajectories in adulthood.[4] The prevalence of obesity among school-aged children and adolescents in China increased from approximately 2% to 10% in the past three decades,[5] in contrast to the stabilising trend observed in many high-income countries.[6] Addressing this issue requires new strategies that take into account China's ongoing social development and epidemiological transition.

Previous studies have identified divergent trends in mean BMI dependent on sex, urbanity, and socioeconomic status—economically underdeveloped areas and disadvantaged populations have become more vulnerable to obesity, mirroring the current situation in developed countries.[2] These shifts might be particularly noticeable among young people. Policy makers could further consider improving the conditions in which low-income groups access physical exercise facilities and healthy foods at a low price in their neighbourhoods and people with little education understand how physical activity and various food types can affect their health.

Chen and colleagues provide a thorough analysis of the limitations of their study, with the most important one being the study's reliance on self-reported data for weight at age 25 years. In addition to the influence of potential recall and social desirability biases, and inaccurate memories spanning 5–54 years, there are also knowledge gaps in two aspects of this data that highlight fields for future investigation. First, weight and its derivative, BMI, are inadequate for representing obesity status. As the authors discuss, redistribution of body fat from the extremities towards the trunk, leading to a predominance of central obesity, is a characteristic of early adulthood. Thus, data on waist and hip circumference measurements and the visceral adiposity index[7] are essential for a comprehensive assessment of the cardiovascular disease risk associated with obesity in early adulthood. Second, considering the nature of metabolic factors and their effect on health, a cumulative exposure to obesity, or obesity load over time, might serve as a more global indicator of associated cardiovascular disease risk, as opposed to single-point values or two-point changes. Correspondingly, more frequent weight measurements are needed. To address these knowledge gaps, establishing a life-course cohort with periodically repeated measurements would be ideal. In the meantime, existing health check-up databases with individual-level longitudinal data linkage could also be used as a feasible resource.[8]

Obesity is a prominent risk factor that needs to be addressed not only across the entire population but also throughout the life course. The road ahead for research and practice is long, and actions should be guided by farsighted strategies and fueled by multisector resources.

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1 Afshin A, Forouzanfar MH, Reitsma MB, et al. Health effects of overweight and obesity in 195 countries over 25 years. *N Engl J Med* 2017; **377:** 13–27.

2 Wang L, Zhou B, Zhao Z, et al. Body-mass index and obesity in urban and rural China: findings from consecutive nationally representative surveys during 2004–18. *Lancet* 2021; **398:** 53–63.

3 Chen Y, Yu W, Lv J, et al. Early adulthood BMI and cardiovascular disease: a prospective cohort study from the China Kadoorie Biobank. *Lancet Public Health* 2024; published online June 14. https://doi.org/10.1016/S2468-2667(24)00043-4.

4 Simmonds M, Llewellyn A, Owen CG, Woolacott N. Predicting adult obesity from childhood obesity: a systematic review and meta-analysis. *Obes Rev* 2016; **17:** 95–107.

5 Pan XF, Wang L, Pan A. Epidemiology and determinants of obesity in China. *Lancet Diabetes Endocrinol* 2021; **9:** 373–92.

6 Abarca-Gómez L, Abdeen ZA, Hamid ZA. Worldwide trends in body-mass index, underweight, overweight, and obesity from 1975 to 2016: a pooled analysis of 2416 population-based measurement studies in 128·9 million children, adolescents, and adults. *Lancet* 2017; **390:** 2627–42.

7 Amato MC, Giordano C, Galia M, et al. Visceral adiposity index: a reliable indicator of visceral fat function associated with cardiometabolic risk. *Diabetes Care* 2010; **33:** 920–22.

8 Fu J, Deng Y, Ma Y, et al. National and provincial-level prevalence and risk factors of carotid atherosclerosis in Chinese adults. *JAMA Netw Open* 2024; **7:** e2351225.