

Economic growth linked to reduction in stunting and thinness, rise in overweight, obesity in Chinese children

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The first study to evaluate the effect of economic growth on malnutrition in all its forms has found that, while stunting and thinness have ameliorated in recent years, a four-fold increase in overweight and obesity among children and adolescents occurred in China between 1995 and 2014, with around one in five children and adolescents now either overweight or obese.

The research, published in *The Lancet Diabetes & Endocrinology* journal, shows that although [economic growth](#) might contribute to the reductions in stunting and thinness, its double-edged sword effect on the marked increase in overweight and obesity highlights a need to proactively adopt strategies to ensure dietary quality and diversity as well as maintenance of physical activity in a context of rapid economic growth and urbanisation.

China's economy boomed from 2000 to 2014, and it is now the second largest in the world. Such growth has many societal impacts and China has made great progress in reducing poverty and hunger, but has also seen an increase in non-communicable diseases in adults.

Previous research has shown that economic development improves [child health](#) and nutrition, though this is by no means universal, and better nutrition can go hand in hand with increases in obesity. This study aimed to investigate whether urban-rural inequalities in nutritional status

changed in China during the period surveyed and to assess the associations between shifts in three indicators—stunting, thinness and overweight and obesity—and nutritional status changes. Meanwhile, they used three indicators of socioeconomic development: per capita GDP, Engel coefficient—a measure of the proportion of income spent on food—and urbanisation data.

The team extracted data from the 1995, 2000, 2005, 2010 and 2014 cycles of the Chinese National Survey on students' Constitution and Health, so far, the largest nationally representative study of Chinese school-aged child and adolescent health status. They included 1,054,602 participants aged between 7 and 18 years, with complete records on age, sex, nationality, height and weight in the final analysis.

The survey observes increases in [average height](#), weight, and BMI, and the prevalence of overweight and obesity, as well as average GDP per capita and urbanisation ratio from 1995 to 2014, while the prevalence of stunting and thinness and the Engel coefficient steadily declined.

Between 1995 and 2014, stunting prevalence in Chinese children and adolescents decreased from 8.1% to 2.4% and thinness prevalence declined from 7.5% to 4.1%. On average, overweight and obesity prevalence increased from 5.3% to 20.5%. During the period observed, provinces with higher GDP per capita led the transition with faster transition to reductions in thinness and stunting, and increases in obesity and overweight.

Urban children and adolescents had a lower prevalence of stunting and thinness than did those in [rural areas](#), though there was narrowing difference between urban and rural populations over time. The urban-rural disparity reduced over time for average height, prevalence of stunting and prevalence of overweight and obesity.

Co-author Professor Jun Ma, Peking University in China, says:

"Socioeconomic development has brought rapid changes in nutrition in Chinese children and adolescents and there are important improvements in stunting and thinness. We are concerned to see such a marked increase in overweight and obesity. This suggests a pressing need for policy responses that may include taxation of food and beverage with added sugars and fats, subsidies to promote dietary diversity, and strategies to promote physical activity and health education."

The findings of the study vary from trends elsewhere in the world—such as in the UK, where the trend has now reversed and low socioeconomic status is linked with being overweight or obese. In the future, this could begin to be seen in China and in other low and middle income countries as they increase their socioeconomic status. The authors note that some areas in China with higher socioeconomic development such as Beijing and Shandong, are starting to show such a reversed pattern, with rural children affected by a dual burden of undernutrition and overnutrition.

The findings of this research suggest that there is a value in using multiple indicators to track social and economic developments, particularly in many lower and middle income countries where direct indicators of nutritional status are not available. Policies such as taxation of foods with high sugar and fat and financial subsidies for nutritional diversity along with health education could be important in groups and places where [economic development](#) is slower.

The authors note some limitations. Firstly, it only analysed Han Chinese children and adolescents so may not apply to other ethnic groups, and the survey took place in school attendees only. The authors calculated socioeconomic indicators at a provincial level rather than average individual- or household-level data.

While the study does not capture population mobility in China (which

has been substantial over the 20 year period studied), the authors address this through stratification by urbanisation in the study years. In addition, movement is unlikely in the population observed due to the need for compulsory attendance at school and a law requiring people's registration to an area.

Writing in a linked Comment, Dr. Lindsay M Jaacks of the Harvard TH Chan School of Public Health, USA, says: "These results do not necessarily call for less economic growth but for more equitable and sustainable economic growth. Implementation of policies that promote healthier patterns of behaviour and greater regulation of the food industry should be a priority for China and others striving to end all forms of malnutrition."

More information: *The Lancet Diabetes & Endocrinology* (2019).
[www.thelancet.com/journals/lan ... \(19\)30075-0/fulltext](http://www.thelancet.com/journals/lan... (19)30075-0/fulltext)

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