

Child diabetes levels higher in China than in US, study finds

July 5 2012

A study led by researchers at the University of North Carolina at Chapel Hill found Chinese teenagers have a rate of diabetes nearly four times greater than their counterparts in the United States. The rise in the incidence of diabetes parallels increases in cardiovascular risk, researchers say, and is the result of a Chinese population that is growing increasingly overweight.

The study led by Barry Popkin, Ph.D., W.R. Kenan Jr. Distinguished Professor of nutrition at UNC's Gillings School of Global Public Health, and Chinese researchers, used data from the China Health and Nutrition Survey (CHNS), the longest ongoing study of its kind in China. Between 1989 and 2011, the study followed more than 29,000 people in 300 communities throughout China, with surveys conducted in 1989, 1991, 1993, 1997, 2000, 2004, 2006, 2009 and 2011. The CHNS project was a joint undertaking by the University of North Carolina at Chapel Hill and the Chinese Center for Disease Control (CCDC) National Institute of Nutrition and Food Safety.

The findings appear online in *Obesity Reviews* Early View Section and will be published in the September issue (*Obesity Reviews* Volume 13, Issue 9, September 2012). *Obesity Reviews* is an official journal of the International Association for the Study of Obesity (IASO; <http://www.iaso.org>)

China has experienced unprecedented economic growth in the past two decades, but the study finds that at the same time, China has seen equally

dramatic changes in the weight, diets and physical activity levels of its people. UNC-CCDC researchers followed a randomly selected sample representing 56 percent of the Chinese population in 2009 and found large increases in overweight and cardiometabolic risk factors.

"What is unprecedented is the changes in diet, weight and [cardiovascular risk](#) for children age 7 and older," said Popkin. "These estimates highlight the huge burden that China's [health care system](#) is expected to face if nothing changes."

The UNC-CCDC team observed rates of [diabetes](#) of 1.9 percent and pre-diabetes levels of 14.9 percent in Chinese children age 7-17. Researchers noted that high levels of glycosylated hemoglobin (HbA1c) were found in the children's blood. HbA1c is a measure of the average plasma-glucose concentration over time.

"The findings suggest a very high burden of chronic disease risk starting at a young age, with 1.7 million Chinese children ages 7-18 having diabetes and another 27.7 million considered prediabetic," Popkin said. "In addition, more than one-third of children under age 18 had high levels of at least one cardiometabolic risk factor."

Comparing the Chinese data with data from the United States based on National Health and Nutrition Survey (NHANES) results, the authors found that diabetes and inflammation rates were higher in the Chinese pediatric population than in the U.S. pediatric population or in other Asian countries. Researchers found 1.9 percent of Chinese [children age](#) 12-18 had diabetes, compared to 0.5 percent of children in the U.S. The study also found great disparity with respect to inflammation, a key cardiovascular risk factor; 12.1 percent of Chinese adolescents showed a high inflammation risk, compared to 8.5 percent of adolescents in the U.S.

"The number of individuals with high levels of at least one cardiovascular risk factor increased to 85 percent in individuals age 40 and older," said Penny Gordon-Larsen, Ph.D., professor of nutrition in UNC's Gillings School of Global Public Health. "Of even greater concern is the fact that we see these high levels of risk in individuals living across the entire country – in rural and urban, as well as high and low-income areas. So the impending health care costs and implications are immense."

These results reinforce earlier research by the authors that found higher levels of obesity emerging in the past decade among the poor and those living in rural areas of China.

More information: The new study is titled "The expanding burden of cardiometabolic risk in China: the China Health and Nutrition Survey." [onlinelibrary.wiley.com/doi/10...012.01016.x/abstract](https://onlinelibrary.wiley.com/doi/10.1111/1365-3113.12012.01016.x/abstract)

Provided by University of North Carolina at Chapel Hill

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