

Study finds growing 'weight extremes' in the developing world

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(Medical Xpress)—Obese and overweight people are gaining weight rapidly in low-and middle-income countries while those who are severely undernourished are not experiencing similar weight gains, according to a University of Toronto and Harvard School of Public Health study.

This growing divide may force governments in the developing world to care for people who fall dramatically short on their [calorie intake](#) while simultaneously treating health problems associated with obesity, including diabetes and heart disease.

"One might think that as a country grows economically, the majority of the underweight population would move into the average BMI range, but our study shows the opposite: people of average [weight](#) are disappearing," says Fahad Razak, the study's lead author and a U of T clinical fellow working at St. Michael's Hospital's internal medicine unit.

"This growing trend of body weight extremes is going to pose a major challenge for health care and policy leaders," says Razak. "They will need to balance their priorities between addressing health issues afflicting the underweight who happen to be poor, and health issues afflicting the obese and overweight – the upper middle-class and rich."

The study uses information collected in Demographic and Health Surveys (DHS), an American-led project that tracks health and [population trends](#) in developing countries. Researchers analyzed the [Body Mass Index](#) (BMI) of 730,000 women living in 37 countries

between 1991 and 2008 and found that as the average BMI in a population increases, the numbers of overweight and [obese women](#) are increasing at a much faster rate than the decline in the number of underweight women.

BMI is an indicator of body fat calculated by dividing a person's weight in kilograms by their height in meters squared. Obesity is defined as having a BMI of more than 30.0 kg/m². Compared to people with a healthy weight (a BMI between 18.5 and 24.9 kg/m²), [obese individuals](#) and [overweight individuals](#) (who have a BMI between 25.0 and 29.9 kg/m²) have an increased risk of diabetes, heart disease and stroke, and tend to die younger. At the same time, people who are underweight (BMI less than 18.5) also have an increased risk of death, perhaps from complications related to being malnourished.

"The study is novel because for the first time we are showing that increases in BMI are not happening equally across the board; rather increases in average BMI are largely driven by populations that are already overweight or obese, with little to no change among underweight individuals," says S V Subramanian, professor of Population Health and Geography at Harvard School of Public Health, the senior author of the study. "This divergence in the population with fat getting fatter and lean remaining lean is aligned with general patterns of divergence on other domains such as income, and wealth, which of course, are primary drivers of weight status in these countries."

The researchers' future work will test whether these patterns are also observed in more developed countries.

More information: The study, "Change in the Body Mass Index Distribution for Women: Analysis of Surveys from 37 Low- and Middle-Income Countries," is published in the January 15, 2013, issue of *PLOS Medicine*.

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