

# Millions of women severely undernourished in low- and middle-income countries

November 24 2015

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More than 18 million women in low- and middle-income countries around the world are severely undernourished, according to the first global estimate published in a new study from St. Michael's Hospital and Harvard T.H. Chan School of Public Health. These women tend to be the poorest and least educated members of society and comprise a "left behind" population of adults with severe undernutrition whose needs have not been met by economic gains and progress and who have been understudied by health researchers.

The study will appear online November 24, 2015 in *JAMA*.

"What surprised us was the number of [women](#) suffering from severe undernutrition despite the fact that the prevalence of being overweight or obese has risen in most of the countries we looked at," said lead author Fahad Razak, scientist at the Li Ka Shing Knowledge Institute of St. Michael's Hospital, Toronto, Canada, and visiting scientist at the Harvard Center for Population and Development Studies. "What was also striking was that there was no decline in the prevalence of severe adult undernutrition in the past two decades in the majority of countries."

This was the first broad global study of severe chronic adult undernutrition, which is defined as having a [body mass index](#) (BMI) less than 16. Very low BMI has serious adverse health impacts, including decreases in muscle strength and ability to work, greater infection rates, poor pregnancy outcomes such as higher rates of stillbirth and low

birthweight infants, and for infants that survive, greater rates of wasting and stunting as they grow. Also, people with very low BMI in poor countries have high mortality levels—higher than those who are obese.

The study looked both at the prevalence of BMI

Researchers analyzed data from more than 700,000 women aged 20-49, from 60 low- and middle-income countries, who participated from 1993-2012 in the Demographic Health Surveys program, which has conducted surveys in more than 85 countries since 1984. They took into account the women's wealth, age, education, and whether they lived in rural or urban areas.

The highest prevalence of undernutrition was in India (6.2%), followed by Bangladesh (3.9%), Madagascar (3.4%), Timor Leste (2.9%), Senegal (2.5%), and Sierra Leone (2.2%). Six countries had prevalences of less than 1%—Albania, Bolivia, Egypt, Peru, Swaziland, and Turkey.

Researchers found that poor women with little education were much more likely to be undernourished than their wealthier, better educated counterparts and were also more likely to live in rural areas.

They also found that, in a subset of 40 countries where repeated surveys were conducted, most countries did not have a decline in the prevalence of BMI

"In light of the dominant scientific and public narrative of obesity—which remains concentrated among the better-off in these [countries](#)—it is sobering and troubling to find millions who basically have been forgotten," said S V Subramanian, professor of population [health](#) and geography at Harvard Chan School and senior author of the study.

**More information:** "Prevalence of Body Mass Index Less Than 16 Among Women in Low and Middle Income Countries," Fahad Razak, Daniel J. Corsi, Arthur S. Slutsky, Anura Kurpad, Lisa Berkman, Andreas Laupacis, S V Subramanian, *JAMA*, online November 24, 2015, [DOI: 10.1001/jama.2015.15666](https://doi.org/10.1001/jama.2015.15666)

Provided by St. Michael's Hospital

Citation: Millions of women severely undernourished in low- and middle-income countries (2015, November 24) retrieved 17 May 2024 from <https://medicalxpress.com/news/2015-11-millions-women-severely-undernourished-low-.html>

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