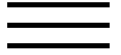


National, regional, and global trends in body-mass index since 1980: systematic analysis of health examination surveys and epidemiological studies with 960 country.

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National, regional, and global trends in body-mass index since 1980: systematic analysis of health examination surveys and epidemiological studies with 960 country-years and 9.1 million participants

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Summary

Background

Excess bodyweight is a major public health concern. However, few worldwide comparative analyses of long-term trends of body-mass index (BMI) have been done, and none have used recent national health examination surveys. We estimated worldwide trends in population mean BMI.

Methods

We estimated trends and their uncertainties of mean BMI for adults 20 years and older in 199 countries and territories. We obtained data from published and unpublished health examination surveys and epidemiological studies (960 country-years and 9.1 million participants). For each sex, we used a Bayesian hierarchical model to estimate mean BMI by age, country, and year, accounting for whether a study was nationally representative.

Findings

Between 1980 and 2008, mean BMI worldwide increased by 0.4 kg/m² per decade (95% uncertainty interval 0.2–0.6, posterior probability of being a true increase >0.999) for men and 0.5 kg/m² per decade (0.3–0.7, posterior probability >0.999) for women. National BMI change for women ranged from non-significant decreases in 19 countries to increases of more than 2.0 kg/m² per decade (posterior probabilities >0.99) in nine countries in Oceania. Male BMI increased in all but eight countries, by more than 2 kg/m² per decade in Nauru and Cook Islands (posterior probabilities >0.999). Male and female BMIs in 2008 were highest in some Oceania countries, reaching 33.9 kg/m² (32.8–35.0) for men and 35.0 kg/m² (33.6–36.3) for women in Nauru. Female BMI was lowest in Bangladesh (20.5 kg/m², 19.8–21.3) and male BMI in Democratic Republic of the Congo 19.9 kg/m² (18.2–21.5), with BMI less than 21.5 kg/m² for both sexes in a few countries in sub-Saharan Africa, and east, south, and southeast Asia. The USA had the highest BMI of high-income countries. In 2008, an estimated 1.46 billion adults (1.41–1.51 billion) worldwide had BMI of 25 kg/m² or greater, of these 205 million men (193–217 million) and 297 million women (280–315 million) were obese.

Interpretation

Globally, mean BMI has increased since 1980. The trends since 1980, and mean population BMI in 2008, varied substantially between nations. Interventions and policies that can curb or reverse the increase, and mitigate the health effects of high BMI by targeting its metabolic mediators, are needed in most countries.

Funding

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