Gac Sanit. 2026;40(S4):274

Gaceta Sanitaria

https://www.gacetasanitaria.org

437 - THE WEIGHT OF THE WORLD: HUMAN BIOMASS, OVERWEIGHT AND OBESITY

I. Landray, D. Prieto Merino

Universidad de Alcalá.

Resumen

Background/Objectives: Estimating the average and overall human biomass in each country and region allows for more thorough understanding of the impacts of population growth on energy requirements than measuring population size alone. We update estimates of global human biomass, its distribution by region and the proportion of biomass due to overweight and obesity, which were last estimated using 2005 data.

Methods: Data from 2022 were available from Non-Communicable Disease Risk Factor Collaboration on body mass index (BMI) and height distributions by age, sex and country. We fitted split-normal distributions to the BMI data to allow for skewness. We used these distributions to estimate average body mass, total biomass, the prevalence of overweight (BMI > 25)/obesity (BMI > 30), and the biomass due to overweight/obesity. We also estimate these measures under two hypothetical scenarios by applying the BMI distribution of (1) Japan and (2) USA to each country.

Results: In 2022, global adult human biomass was approximately 376 million tonnes, of which 33 million (8.7%) were due to overweight and 10 million (2.8%) were due to obesity. The biomass due to obesity was equivalent to 154 million people of average body mass. There were important differences by region. Asia accounted for 59.7% of the world's population but only 28.3% of global biomass due to obesity. In contrast, North America had just 5.4% of the world's population yet accounted for 21.4% of global biomass due to obesity. Furthermore, 8.7% of North America's biomass was due to obesity - more than six times the proportion in Asia (1.4%). If all countries had the BMI distribution of Japan, there would be a decrease in human biomass of 32.3 million tonnes (8.6% reduction). On the other hand, if all countries had the BMI distribution of USA, there would be an increase in human biomass of 69.6 million tonnes (18.5% increase): equivalent to an extra 1.03 billion people of average mass.

Conclusions/Recommendations: Population size alone is an insufficient metric for assessing global energy requirements due to human mass being disproportionately distributed across regions. Our results show that overweight and obesity contribute substantially to global human biomass, particularly affecting North America. Compared to 2005, average body mass and prevalence of overweight have increased in all regions in 2022.

Funding: Grupo de Investigación en Salud Pública y Epidemiología, Universidad de Alcalá.

0213-9111 © 2026 SESPAS. Publicado por Elsevier España, S.L.U. Todos los derechos reservados