

Study suggests obesity associated with greater greenhouse gas emissions

December 20 2019



Credit: CC0 Public Domain

A new analysis suggests that the increasing average body size of people on Earth, in addition to the growing world population may further challenge attempts to reduce man-made carbon dioxide emissions,

according to a paper published online in *Obesity*, the flagship journal of The Obesity Society.

All oxygen-dependent organisms on the planet produce carbon [dioxide](#) as a result of metabolic processes necessary to sustain life. Total carbon dioxide production from any species is linked to the average metabolic rate, the average body size and the total number of individuals of the species.

People with [obesity](#) have greater carbon dioxide production from oxidative metabolism than individuals with normal weight. Also, maintenance of greater body weights requires more food and drinks to be produced and transported to the consumers. Similarly, transportation of heavier people is associated with increased consumption of fossil fuels. This results in additional [carbon dioxide emissions](#) related to food production and transportation processes. Globally, obesity was estimated to contribute to an extra 700 megatons of carbon dioxide emissions per year or about 1.6 percent of all man-made emissions.

The authors emphasize that it is critically important that this new information does not lead to more weight stigmatization. People with obesity already suffer from negative attitudes and discrimination, and numerous studies have documented several prevalent stereotypes.

"This study makes it clear that we pay a steep price for making it difficult to access care for obesity. Not only does obesity affect the health of the individuals who have it, untreated obesity might also contribute to environmental issues," said Ted Kyle, RPh, MBA, founder of ConscienHealth, who was not involved in the research.

Physical activity is also associated with much more carbon dioxide being produced compared with rest, but no one will ever think of stigmatizing people who exercise for having a negative effect on the environment,

according to Boyd Swinburn, MB ChB, FRACP, MD, FNZCPHM, in the School of Population Health at the University of Auckland in New Zealand. Swinburn wrote a commentary on the paper.

"Our analysis suggests that, in addition to beneficial effects on morbidity, mortality, and healthcare costs, managing obesity can favorably affect the environment as well," said Faidon Magkos, of the Department of Nutrition, Exercise and Sports at the University of Copenhagen in Denmark. "This has important implications for all those involved in the management of obesity." Magkos is the corresponding author of the paper.

To assess the impact of obesity on the environment, researchers used the standard definitions of obesity (body mass index of greater than or equal to 30 kg/m^2) and normal weight (body mass index of less than 25). Calculations were made of the extra emission of greenhouse gases (carbon dioxide, methane, and nitrous oxide) from the increased oxidative metabolism, the increased food production and consumption and the increased fuel used to transport the greater body weight of people with obesity.

Compared with an individual with normal weight, researchers found an individual with obesity produces an extra 81 kg/y of carbon dioxide emissions from higher metabolism, an extra 593 kg/y of carbon dioxide emissions from greater food and drink consumption and an extra 476 kg/y of carbon dioxide emissions from car and air transportation. Overall, obesity is associated with approximately 20 percent greater greenhouse gas emissions when compared to people with [normal weight](#).

"Harmonizing data from epidemiology (prevalence rates of obesity), physiology (total energy intake and expenditure) and environmental science ([carbon](#) dioxide emissions from different sources) is not a straightforward task, and we emphasize that our estimates are not

intended to be precise, but rather be reasonable enough," said Magkos.

In the commentary accompanying the paper, Swinburn said the estimates add valuable information to the growing literature examining the nexus between obesity and climate change. He added, "while the contribution of obesity to greenhouse gas emissions is small, acting on the underlying drivers of them both is of paramount importance."

More information: Faidon Magkos et al. The Environmental Foodprint of Obesity, *Obesity* (2019). [DOI: 10.1002/oby.22657](https://doi.org/10.1002/oby.22657)

Provided by The Obesity Society

Citation: Study suggests obesity associated with greater greenhouse gas emissions (2019, December 20) retrieved 3 May 2024 from <https://medicalxpress.com/news/2019-12-obesity-greater-greenhouse-gas-emissions.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.