

# Biases in cardiometabolic research put minority women's lives at risk

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Biases in heart disease and metabolic disorder studies—also known as cardiometabolic studies—are putting the lives of midlife Black and Hispanic women in jeopardy.

These women are experiencing cardiometabolic risks five to 11 years earlier than white women, but studies designed to gauge these differences often underestimate the disparity, according to new research from the University of Michigan.

In a new study published in *JAMA Network Open*, researchers have corrected for the sources of systematic exclusion common in studies and learned that correction for these biases decreased the estimated age of cardiometabolic disease onset by an average of 20 years.

"Black and Hispanic women were most affected by these biases," said study lead author Alexis Reeves, a former doctoral student in epidemiology at U-M's School of Public Health.

Earlier disease onset for [minority populations](#) points to "weathering" or earlier health declines in these groups due to structural social and economic marginalization.

Given that cardiometabolic diseases are the main predictor of health and longevity, understanding these [racial differences](#) in "weathering" and the typical age of onset of the disease is important to target interventions to earlier stages of life for prevention, said senior author Sioban Harlow, U-M professor of epidemiology.

Data are from a [cohort study](#) that followed midlife women from 1996 to 2016. The study involved more than 3,300 women ages 42 to 52 years in 1996, whose racial or ethnic group included Black, Chinese, Hispanic, Japanese and [white women](#).

The findings indicated that hypertension occurred about five years earlier, and [insulin resistance](#) and diabetes 11 years earlier for minority women compared to their white counterparts.

"Failure to account for selection biases ... was associated with falsely high estimates of age at cardiometabolic onset, with greater misestimation among Black and Hispanic women," said Reeves, who is currently a postdoctoral fellow at Stanford University School of Medicine.

In other words, interventions should be targeted to minority women as young as 30 years for hypertension and 40 years for metabolic conditions, Reeves said. If not addressed, cardiometabolic disease will shorten a person's life span.

She noted the study had limited power for estimating age of onset for Chinese and Japanese women, as they had a low prevalence and incidence of metabolic outcomes in the study.

The study highlights important and understudied biases in observational research, Reeves said. It suggests the need for more careful consideration of these biases in new and ongoing research on the causes and prevention of earlier aging and health declines for minority populations, she said.

The study's other authors are Mike Elliott, U-M professor of biostatistics; Tene Lewis, associate professor of epidemiology at Emory University; Carrie Karvonen-Gutierrez, U-M assistant professor of epidemiology; and William Herman, U-M professor of epidemiology and internal medicine.

**More information:** Alexis Reeves et al, Study Selection Bias and Racial or Ethnic Disparities in Estimated Age at Onset of Cardiometabolic Disease Among Midlife Women in the US, *JAMA Network Open* (2022). [DOI: 10.1001/jamanetworkopen.2022.40665](https://doi.org/10.1001/jamanetworkopen.2022.40665)

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