

THE FUNDING GENDER GAP

Conditions that affect women more than men garner less funding. But boosting investment could reap big rewards. **By Kerri Smith**

Diseases don't treat the sexes equally. Some illnesses, such as prostate and ovarian cancer, affect a sex-specific organ. Others take an uneven toll on men or women. For example, in 2019, 57% of people who died of strokes in the United States were women. Funding for disease research is often not proportionate to disease burden, and studies have shown that diseases that affect more women than men are chronically underfunded.

One such study¹, by US applied mathematician Arthur Mirin, an independent researcher, looked at disease research funded by the US National Institutes of Health (NIH). Mirin categorized the diseases according to whether they were female-dominant or male-dominant and examined their disease burden – a measure of how much death and disability a disease causes.

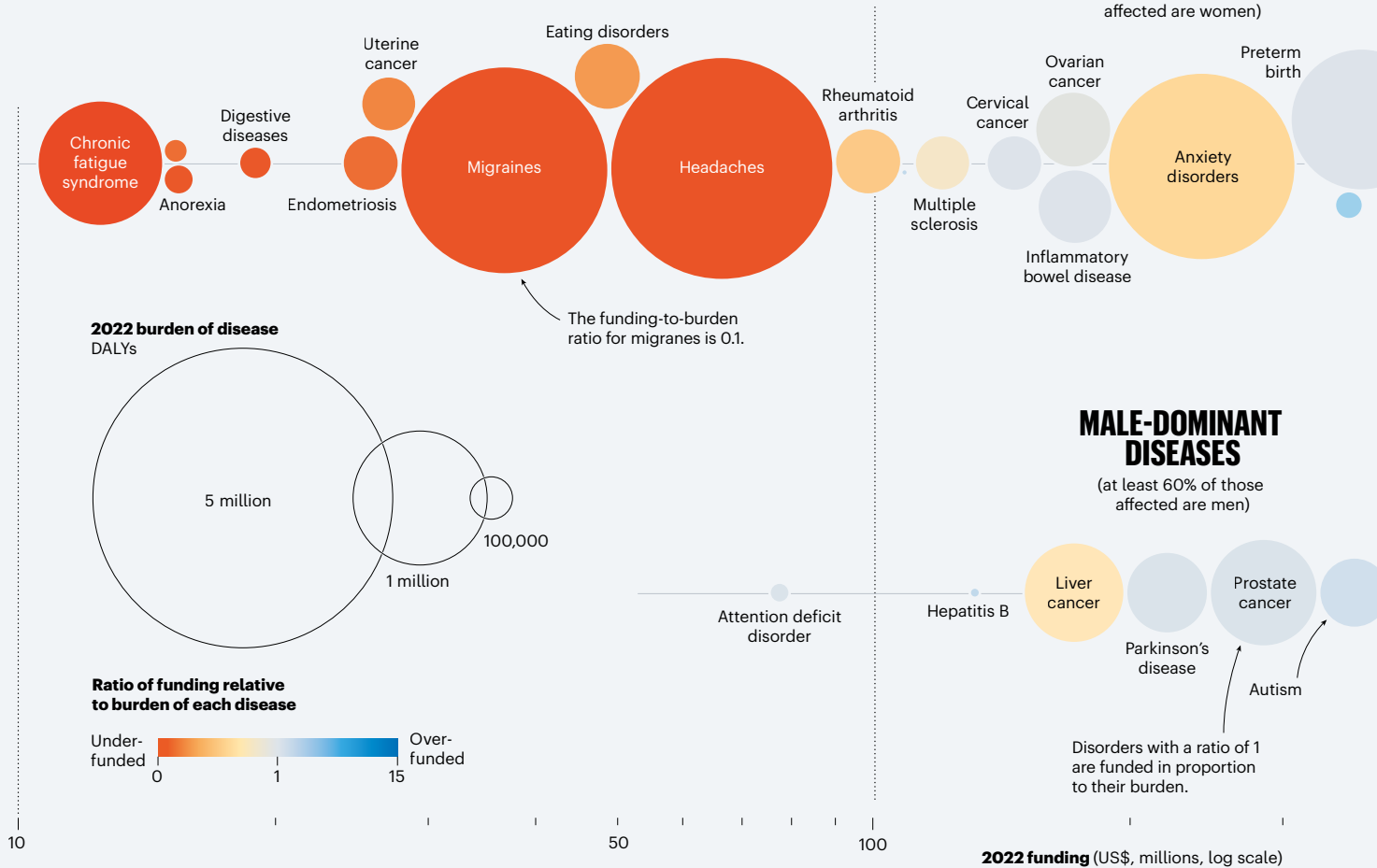
Of the conditions that are dominant in one sex, those that create the highest burden, such as depression and headaches, tend to affect women more (see 'Unequal toll').

But when Mirin looked at how much funding

UNEQUAL TOLL

An analysis of data from the US National Institutes of Health (NIH), which spent US\$45 billion on biomedical research in 2022, shows that many diseases that affect more women than men are underfunded compared with how

much disability and death they cause — measured in disability-adjusted life years (DALYs). If funding were determined only by the burden of each disease, the circles below would all be the same colour.



each disease received from the NIH, he found that diseases that affect mainly women are underfunded compared with the burden. Migraine, headaches and endometriosis, for example, all attract much less funding in proportion to the burden they exert on the US population than do other conditions. HIV/AIDS and substance misuse, which disproportionately affect men, show the opposite pattern.

The degree of underfunding or overfunding is different for the groups of conditions, too. On average, female-dominant diseases that are underfunded are more severely so. Mirin's analysis "demonstrates that the funding of research for women is not aligned with burdens of disease", says Sarah Temkin, associate director for clinical research at the NIH Office of Research on Women's Health.

Neuroscientist Liisa Galea at the Centre for Addiction and Mental Health in Toronto, Canada, who studies depression and Alzheimer's disease, among other disorders, says women's health is about more than just female-specific conditions. "Every single organ in our body is

affected by our sex," she says. "It affects every part of our health."

What if funding for women's health increased? That was the question behind a series of reports commissioned by the non-profit advocacy group Women's Health Access Matters (WHAM) in Greenwich, Connecticut. It worked with researchers at the non-profit RAND Corporation in Santa Monica, California, to run simulations that looked at the likely return on investment for boosting funding of women's health research².

They chose four conditions that affect women disproportionately, or in which women tend to experience different symptoms from men, and which were not related to reproductive or maternal health: rheumatoid arthritis, coronary artery disease, Alzheimer's disease and lung cancer.

Across the four diseases, the NIH budget for women-focused research was US\$350 million. The study modelled what might happen if that doubled, and assumed that this increase would deliver a slight (0.01%) improvement to health

in terms of life expectancy, disease progression and quality of life.

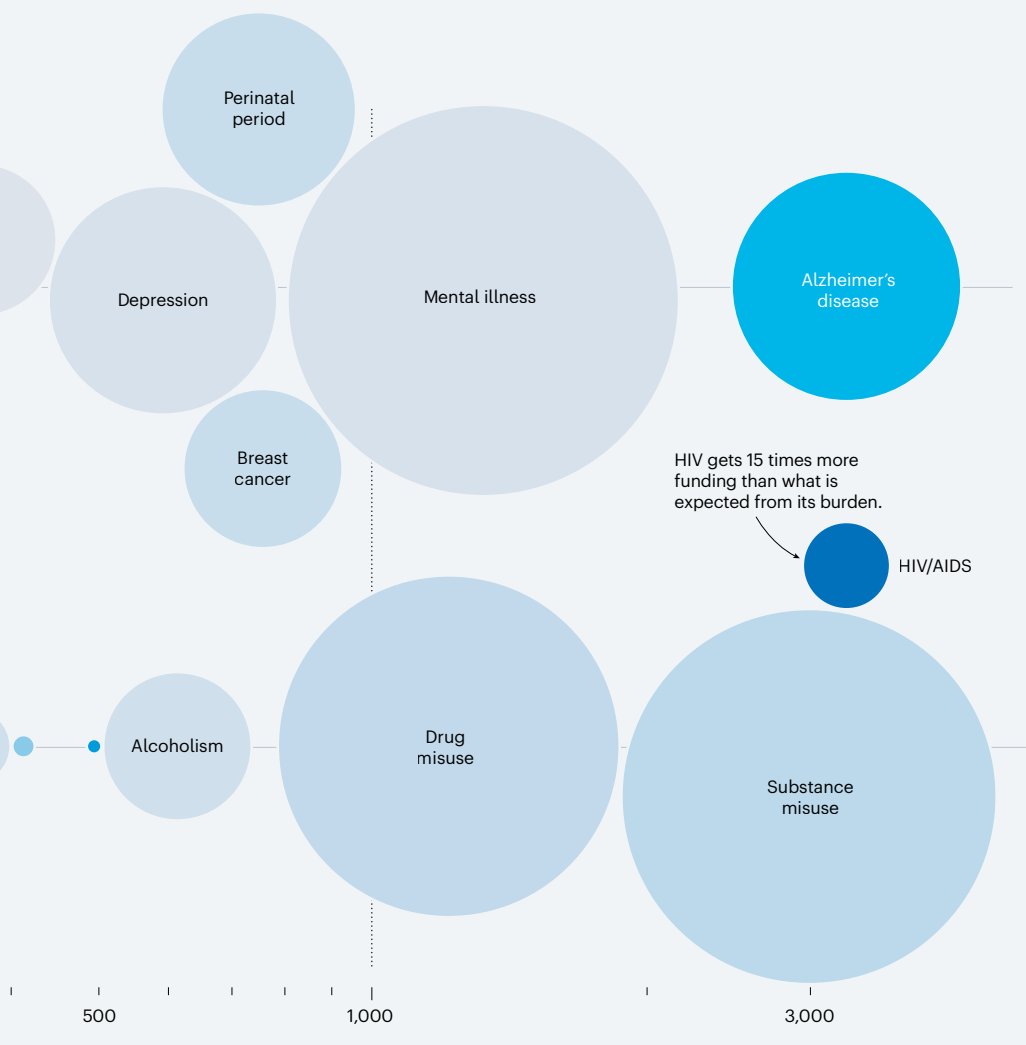
For coronary artery disease, for example, the budget boost was projected to save nearly 20,000 life years and almost 40,000 years with disease for women over a 30-year period.

Efforts are under way to offset the gender gap in funding. For example, in May last year, two US Democratic members of Congress from Illinois, Senator Tammy Duckworth and Representative Jan Schakowsky, introduced a bill calling for a doubling of investment in women's health research.

Galea says that funding for women's health should encourage researchers to pay more attention to the area. "If you put a pot of gold at the end of a funding rainbow, researchers are going to go for it."

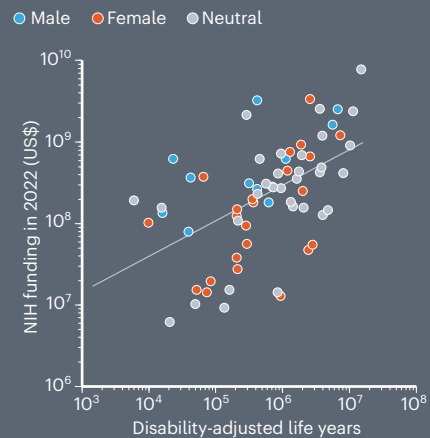
Kerri Smith is a Features editor at *Nature* in London.

1. Mirin, A. A. *J. Womens Health* **30**, 956–963 (2021).
2. Baird, M. D. et al. *The WHAM Report: The Case To Fund Women's Health Research* (RAND & WHAM, 2022).



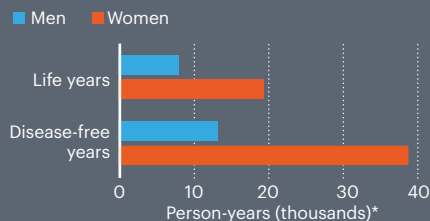
Losing out across the board

Displaying the same diseases alongside data on conditions that affect men and women equally shows that female-dominant conditions are underfunded in relation to almost all other diseases, not just to male-dominant diseases. Many diseases with the highest burden affect men and women roughly equally. The grey line represents funding in proportion with the burden.



How more funding would help

A separate study modelled how doubling US funding for women's health could yield health and economic improvements over a 30-year period. In coronary artery disease, for example, more funding increased life expectancy and disease-free years for men and women — with the model assuming a larger benefit for women.



*Person-years: years saved or added across the modelled group of one million people in the span of 30 years.

SOURCES: CIRCLES & LOSING OUT: REF. 1; ANALYSIS OF NIH DATA BY A. MIRIN. MORE FUNDING: REF. 2