

Income inequality may not be reliable predictor when it comes to population health outcomes, study shows

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Overall	Income Quintile	Gini Index Quintile				
		1	2	3	4	5
		Lowest				Highest
	1 (Lowest)	74.9	74.8	74.5	74.2	73.3
	2	77.3	77.3	77.1	76.7	75.8
	3	78.7	78.9	78.7	78.5	77.7
	4	79.9	80.2	80.1	80.0	79.4
	5 (Highest)	81.4	81.7	81.9	82.1	82.2
Rural-Urban Quintile						
1 (rural)	1 (Lowest)	75.6	76.1	75.8	75.4	74.6
	2	78.1	77.8	77.5	77.0	76.0
	3	79.4	79.5	79.2	78.7	77.6
	4	80.2	80.5	80.3	79.9	79.3
	5 (Highest)	80.4	81.0	81.0	81.6	81.3

Mean census-tract life expectancy overall and cross-classified by quintile of median household income, Gini index, and rural–urban status. Credit: *Journal of Health, Population and Nutrition* (2023). DOI: 10.1186/s41043-023-00366-6

While evidence has long shown that higher income inequality is associated with poorer population health outcomes, a new study from researchers at the University of Rhode Island College of Health Sciences suggests this association may vary based on other factors. In fact, socioeconomic status as well as geography (rural-urban status) play a role when it comes to life expectancy—but not necessarily in the way you might think.

The study, published in the *Journal of Health, Population and Nutrition*, found that while the association between life expectancy and income inequality was negative in most areas, this was not a given in all instances. In fact, in high-income areas with higher income inequality, life expectancy was higher than in high-income areas with a more equitable distribution of wealth—suggesting that income inequality may not be as reliable a predictor when it comes to [population health](#) outcomes as previously believed.

"The general consensus is that the more equitable a society, the better the population health tends to be—which translates to things like people living longer, healthier lives," says Professor Steven Cohen, a social epidemiologist and applied public health demographer in URI's Department of Health Studies, who led the research team. "And while for the most part that is true, what we found in higher-income areas is that this association was actually reversed—almost across the board."

Using 2010-2015 life expectancy data by census tract from the Centers for Disease Control and Prevention WONDER database and linking that to socioeconomic and [demographic data](#) from both the 2010 U.S. Census and the 2010 American Community Survey by census tract, researchers were able to analyze and compare life expectancy against variables such as income inequality, median household income and population density, as well as race, education level and median age.

In total the sample included more than 66,850 census tracts, each with a population of anywhere from 1,200 to 8,000 people. Studies examining the relationship between income inequality and health on a finer scale such as this—at the neighborhood or municipal level—are severely lacking in the United States.

Researchers observed the lowest average life expectancy of 72.3 years in tracts with the lowest income, highest income inequality, and with intermediate rural-urban status; while the highest average life expectancy of 82.3 years was observed in the tracts with the highest income, relatively high income inequality and second most urban status (rating 4 on a 1-5 scale).

Researchers found the association between income inequality and [life expectancy](#) was strongest in areas outside the most rural and most urban census tracts, supporting previous studies concluding that lower income inequality is associated with better population health outcomes. However, in highly rural or highly urban areas these associations were not as strongly present or not present at all.

"One important thing to keep in mind is that most of literature looks at income inequality and various other socioeconomic factors and their relationship to population health outcomes on a much broader geographical scale," said Cohen. "When you start to break things down on a smaller scale as we've done for this study, you see there is much more going on and many more subtle processes at play which are important to understand.

"I think what this tells us is that when it comes to improving population health, reducing [income inequality](#) is not a magic bullet. We really need to drill down further to look at neighborhoods and communities and determine what is happening and what is working in those communities in order to come up with a plan that will be truly effective."

According to the group, future research should focus on identifying and addressing the factors leading to critical health inequalities that can be blunted or masked entirely when reviewing data on a larger scale from a broader geographical area.

More information: Steven A. Cohen et al, Income and rural–urban status moderate the association between income inequality and life expectancy in US census tracts, *Journal of Health, Population and Nutrition* (2023). [DOI: 10.1186/s41043-023-00366-6](https://doi.org/10.1186/s41043-023-00366-6)

Provided by University of Rhode Island

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