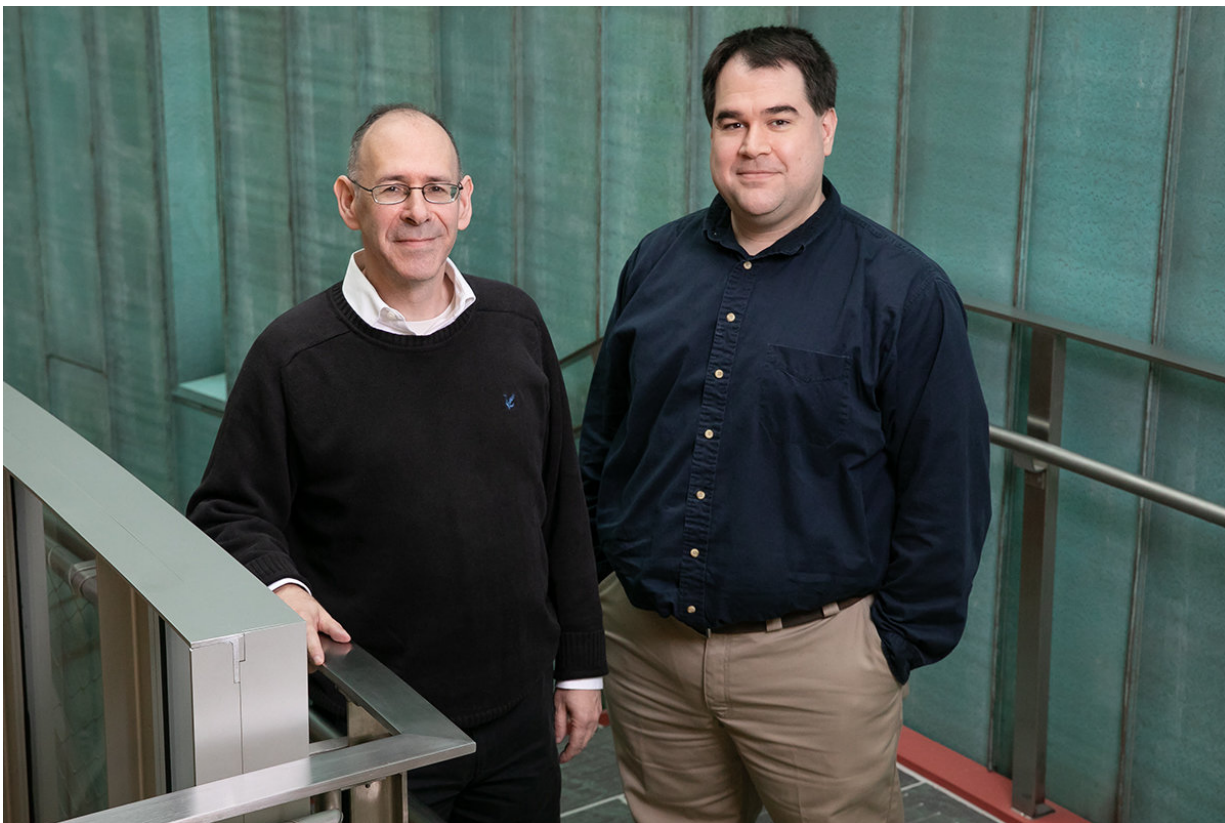


Study: Public transportation use linked to better public health

November 28 2018



Using public health and transportation data from 2001 and 2009, Illinois researchers Sheldon H. Jacobson, left, and Douglas King found that an increase in mass transit use correlates with lower obesity rates. Credit: L. Brian Stauffer

Promoting robust public transportation systems may come with a bonus

for public health—lower obesity rates. A new study from the University of Illinois at Urbana-Champaign compares data from two years to find that a single percentage-point increase in mass transit ridership is associated with a 0.473 percentage-point lower obesity rate in counties across the United States.

"Opting for mass transit over driving creates opportunities for exercise that may otherwise not exist," said [Sheldon H. Jacobson](#), a co-author of the study and a professor of computer science at Illinois. "Instead of just stepping out of the house and into their car, a user needs to walk from their home to a bus stop and from their stop to their destination."

The report, published in the journal *Transportation Research Part A: Policy and Practice*, details a [computational analysis](#) of publicly available health, transportation and census data from 227 counties from 45 states in 2001 and 2009. To normalize for different features across regions, the researchers account for differences in economic and lifestyle factors including leisure-time exercise, household income, health care coverage and public transit funding.

The researchers use a simple example as a frame of reference—a hypothetical U.S. county with a 35 percent obesity rate in which 20 percent of the adult population rides public transit at least two days a week or eleven times a month.

"Using this reference point in our analysis, we project that a 1 percentage-point increase in frequent [mass transit](#) ridership—from 20 to 21 percent—would translate to a reduction in the county obesity rate from 35 percent to 34.527 percent," said [Douglas King](#), a co-author and senior lecturer of industrial and enterprise systems engineering.

The researchers used the 35 percent reference value because that approximates the current U.S. adult obesity rate—the percentage of

adults with a body mass index of 30 percent or higher.

The new analysis is consistent with [previous work](#) by Jacobson and King—which found that each percentage-point increase in a county's public transit ridership was associated with a 0.221 percentage point lower obesity rate.

"The new work takes a longitudinal approach, meaning that we examined differences between 2001 and 2009, allowing us to better control for factors that could otherwise influence the analysis," King said. "For example, factors like weather or physical geography that can influence the obesity rate of a county in both 2001 and 2009 are controlled since their influence is present in both time periods."

While the calculated estimates from the two studies differ in magnitude, they do not differ in a statistically significant way, the researchers said. However, both studies generally support the conclusion that increasing transit usage can reduce a county's obesity rate.

"Because this analysis is at the county level, rather than the individual level, the implications for an average person are not clear," Jacobson said. "The results indicate that when more people opt to use public transit, the county level [obesity](#) rate tends to drop, though it does not necessarily imply that any one particular person is less likely to be obese if they ride transit frequently."

This study focuses on data collected in 2001 and 2009, while rail and bus were the predominant forms of public transportation for most people in the U.S.

"It will be interesting to see how transportation modes such as Uber and Lyft, as well as bike-share programs will influence this type of analysis in the future," Jacobson said. "I think our work points to the conclusion

that investing in public [transit](#) can provide more efficient transportation options that not only benefit the environment but also offer a [public health](#) benefit."

More information: Zhaowei She et al, Is promoting public transit an effective intervention for obesity?, *Transportation Research Part A: Policy and Practice* (2018). DOI: [10.1016/j.tra.2018.10.027](https://doi.org/10.1016/j.tra.2018.10.027)

Provided by University of Illinois at Urbana-Champaign

Citation: Study: Public transportation use linked to better public health (2018, November 28) retrieved 15 August 2024 from <https://medicalxpress.com/news/2018-11-linked-health.html>

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