

**WISCONSIN**

# 'We don't just live in our neighborhoods': How neighborhood inequality might have been linked to your risk of getting COVID

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It's no surprise that where a person lives matters for their well-being.

Decades of research has found affluent neighborhoods, for example, correlate with better health outcomes for those who live there.

But people don't simply stay in their neighborhoods. They travel to work, to shop and to visit family.

And that mobility — who is going to and from a neighborhood — also appears to matter for a person's well-being, according to a growing body of research.

A new study reveals how neighborhood mobility might have helped shape the first year of the COVID-19 pandemic in Wisconsin and two cities, San Francisco and Seattle.

Researchers used COVID infection data for 2,000 census tracts within the three locations and compared it with a dataset of 45 million de-identified cellphone records to show where people traveled. The analysis looked at infection data prior to vaccines being available.

“We know where people in any given neighborhood are going and we know the neighborhoods that are coming to visit their neighborhood,” said Brian L. Levy, the study's lead author who is an assistant professor at George Mason University.

“If poverty and other things like that tend to correlate with COVID-19 infection risk, then it's plausible that being attached to high-poverty neighborhoods is likely to increase your risk for COVID-19,” he said. “And that's what we found.”

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In Wisconsin, a high-poverty neighborhood where residents visited and were visited by residents of other high-poverty neighborhoods had an infection rate that was 25% higher than an affluent neighborhood with a strong connection with other affluent neighborhoods.

The findings suggest the neighborhoods that yours is attached to through visits might be more important than the characteristics of your own neighborhood, such as income and education level, Levy said.

He used an example from Milwaukee's Riverwest neighborhood to illustrate his point.

The census tract that surrounds Kilbourn Park is among the top one-fifth of affluent neighborhoods in the state. But residents visit, and are visited by, people from neighborhoods that fall closer to the median range for affluence.

In that slice of Riverwest, the rate of COVID infections a year into the pandemic was closer to the average for the state — much more consistent with the visit-based neighborhoods than the neighborhood itself, Levy said.

As another one of the researchers put it: "We don't just live in our neighborhoods."

"What that means is not all poor or well-off neighborhoods are the same," said Robert J. Sampson, a professor at Harvard University who has spent his career studying neighborhoods.

The study has limitations. The cellphone data cannot tell what people were doing when moving across neighborhoods. The study did not capture social norms, like masking, or take into account who could access a COVID test or who was a frontline worker.

Still, the authors argue the research can be used by public health officials to better target resources, such as vaccine clinics or mask giveaways.

"What we're hoping to offer it is a new sort of tool to use to predict where those disparities are likely to be greatest and specifically where the health outcomes are likely to be lowest," Levy said.

Racial inequality also appears in neighborhood affluence and visit partners. The new mobility offers more possible factors in racial disparities during the pandemic, said Elizabeth Wrigley-Field, assistant professor at the University of Minnesota.

Wrigley-Field did not help author the recent study, but has examined neighborhood risk and death data during the pandemic in Minnesota.

"If you want to statistically explain the racial differences in mortality in Minnesota, knowing the socioeconomic status of someone's neighborhood is a really good way to do it before the pandemic,"

she said.

"During the pandemic, it actually looks really different from that," she continued.

Wrigley-Field's research found if a white person and a person of color were in equally disadvantaged neighborhoods, the person of color was at a much higher risk of dying than the white person. The new study offers more context for that change.

"Maybe in the pandemic, your neighborhood is actually not your most important social grouping that's driving your risk but it's these bigger chains of interconnected neighborhoods," she said.

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