



The theory suggests that an older adult's access to civic and social organizations, cultural centers such as museums and art galleries, and recreation centers may help protect against cognitive decline as a person ages.

The theory is underpinned by a growing body of research led by a group at the U-M Institute for Social Research and U-M School of Public Health. The group recently published a study in *Social Science & Medicine* finding that unequal distribution of hazards such as pollution and access to amenities such as museums and recreation centers, and civic organizations, where people can gather and connect, may help account for inequities in [cognitive health](#) among older adults.

"I wanted to think about how neighborhoods contribute to risk for Alzheimer's and dementia," said Finlay, a research investigator at ISR's Survey Research Center. "There are hints in the literature that neighborhoods actually could play a really big role, but they're largely overlooked. We don't often pay attention to the neighborhood context for people as they develop and navigate cognitive decline as they age. The goal is to make this work accessible."

Specifically, the study found that neighborhood features such as recreation centers, civic and social organizations, [fast-food](#) and coffee shops, arts organizations, museums and highways all were significant predictors of people's cognitive function scores. People who lived in neighborhoods with ready access to civic and social organizations displayed higher cognitive scores than those who lived in neighborhoods with no immediate access to such organizations. This is similar to about a two-year difference in people's age.

The researchers also showed that people who lived in neighborhoods with high exposure to highways displayed lower cognitive scores than those who lived in neighborhoods with few highways. This again

translates to a two-year difference in people's age. Other features such as neighborhoods with high densities of [coffee shops](#) and fast food establishments were associated with slightly lower levels of cognitive function.

"This is really groundbreaking work. Cognability helps people to think about their neighborhood environment with respect to their cognitive health," said study co-author Philippa Clarke, professor of epidemiology at the School of Public Health and research professor at ISR's Survey Research Center.

"Most research on cognitive function and dementia focuses on mitigating individual risk factors, but cognability redirects attention to those features in the surrounding environment that may go a long way to mitigating [cognitive decline](#) with aging."

Finlay and fellow researcher Michael Esposito previously assessed single features of neighborhoods to determine their impact on cognitive function. But now, the researchers wanted to compare a collection of 15 features to see which may be the most strongly associated with cognitive function among older adults, said Esposito, an assistant professor of sociology at Washington University in St. Louis.

The group included cognitive scores from more than 20,000 participants in the REasons for Geographic And Racial Differences in Stroke (REGARDS) Study, a national sample of older Black and white adults in the United States.

Esposito, who led the statistical analysis portion of the study, created a conservative model that assumed none of the 15 neighborhood features impacted cognitive health. Then, using a statistical learning approach, he let the model run through each of the 15 features of a neighborhood's cognitive function.

"Our starting assumption in the model was that none of these features matters. We only wanted features to remain in the model that have a strong enough association to break free of that assumption," Esposito said. "In the final output, after we tried to eliminate the association, we can check to see if it's still there. If it can pass this test, the feature is probably a salient predictor of cognitive health."

The researchers weren't able to control for factors such as wealth, which they note likely drives a person's ability to buy into a neighborhood with greater access to many of these features. But in future work, they plan to test for such indicators, Esposito said.

"The fact that we're living in a country where people's access to be healthy varies from neighborhood to neighborhood, that health is conditional on where you live, is important to demonstrate," he said.

The team also ran models to see if differences in cognitive function within neighborhoods existed by race, gender and education (a proxy for socioeconomic status), but these early models didn't find significant differences.

"I will say this was a very exploratory and early approach to this work," Finlay said. "We need more theoretically informed and targeted investigations of how neighborhoods and cognitive health might vary by race, ethnicity, gender, education and wealth."

Finlay hopes the website will provide evidence about healthy aging to neighborhood residents, policymakers and those who provide community services.

"The idea is really just awareness and education. Dementia-friendly and aging-friendly efforts often lack real concrete evidence about what to build and how to support communities," he said. "These don't need to be

huge overhauls. It could be adding shaded benches or a bathroom or outdoors exercise equipment targeting older generations to existing playgrounds and parks. It can be small increments to what we're doing to help accommodate people ages eight to 80."

**More information:** Jessica Finlay et al, Cognability: An Ecological Theory of neighborhoods and cognitive aging, *Social Science & Medicine* (2022). [DOI: 10.1016/j.socscimed.2022.115220](https://doi.org/10.1016/j.socscimed.2022.115220)

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