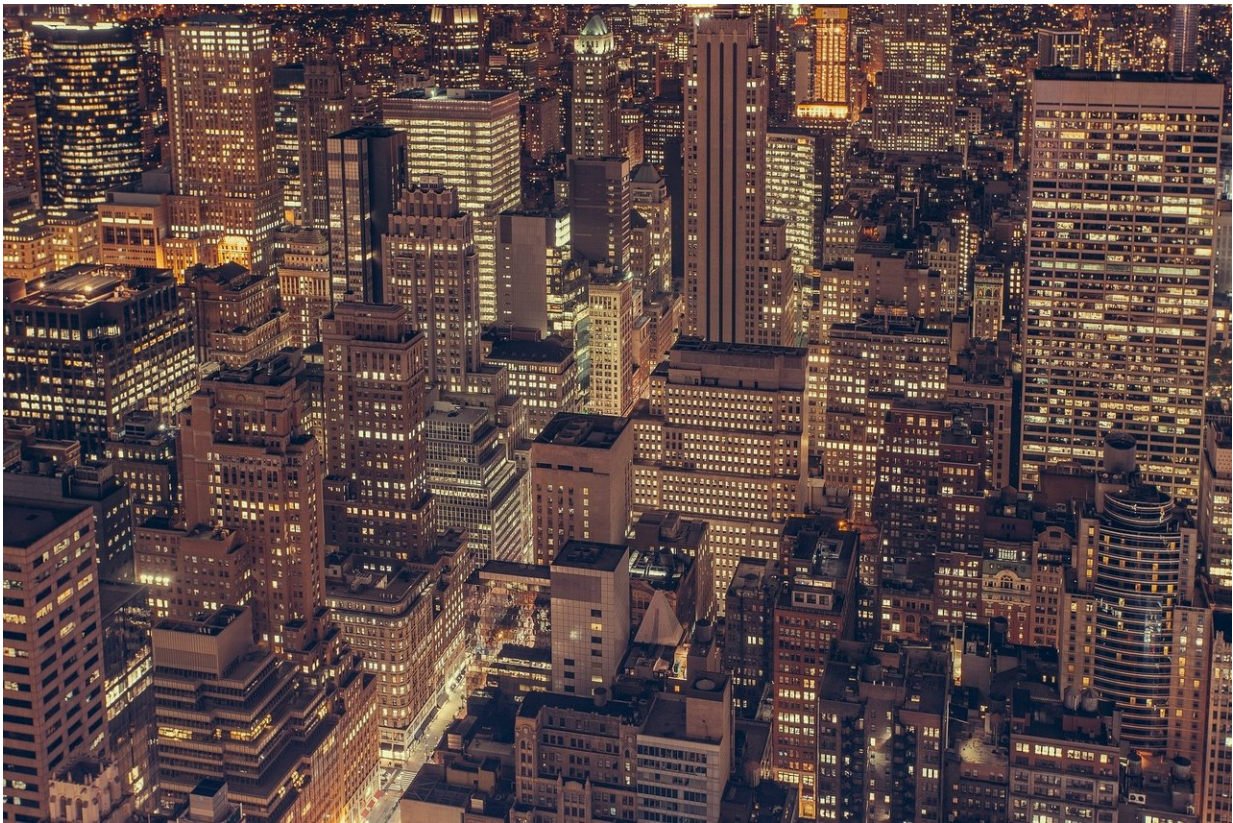


Greening vacant lots reduces feelings of depression in city dwellers, study finds

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Greening vacant urban land significantly reduces feelings of depression and improves overall mental health for the surrounding residents, researchers from the Perelman School of Medicine and the School of

Arts & Sciences at the University of Pennsylvania and other institutions show in a new randomized, controlled study published in *JAMA Network Open*. The findings have implications for cities across the United States, where 15 percent of land is deemed "vacant" and often blighted or filled with trash and overgrown vegetation.

For the first time, the research team measured the mental [health](#) of Philadelphia residents before and after nearby vacant lots had been converted into green spaces, as well as residents living near untreated abandoned lots, and those that just received trash clean-up. They found that people living within a quarter of a mile radius of greened lots had a 41.5 percent decrease in feelings of depression compared to those who lived near the lots that had not been cleaned. Those living near green lots also experienced a nearly 63 percent decrease in self-reported [poor mental health](#) compared to those living near lots that received no intervention.

The findings add to the growing body of evidence showing how revitalized spaces in blighted urban areas can help improve safety and health, such as reducing crime, violence, and stress levels. The most recent study from the same team in February found up to a 29 percent decrease in gun violence near treated lots. This latest work is believed to be the first experimental study to test changes in the mental health of residents after nearby vacant lots were greened.

"Dilapidated and vacant spaces are factors that put residents at an increased risk of depression and stress, and may explain why socioeconomic disparities in mental illness persist," said lead author Eugenia C. South, MD, MSHP, an assistant professor of Emergency Medicine and a member of the Center for Emergency Care and Policy Research at Penn. "What these new data show us is that making structural changes, like greening lots, has a positive impact on the health of those living in these neighborhoods. And that it can be achieved in a

cost-effective and scalable way—not only in Philadelphia but in other cities with the same harmful environmental surroundings."

For the trial, 541 vacant lots throughout Philadelphia were randomly assigned to one of three study arms: greening intervention, a trash clean-up intervention, or a control group with no intervention. The greening intervention involved removing trash, grading the land, planting new grass and a small number of trees, installing a low wooden perimeter fence, and regular monthly maintenance. The trash clean-up involved removing trash, limited grass mowing where possible, and regular monthly maintenance. The Pennsylvania Horticultural Society LandCare program performed the greening, trash clean-up, and maintenance.

Two sets of pre-intervention and post-intervention mental health surveys were performed among 342 people, 18 months before revitalization and 18 months after. Researchers used the Kessler Psychological Distress Scale (K6), a widely used community screening tool, to evaluate the prevalence of serious mental illness in the community. Participants were asked to indicate how often they felt nervous, hopeless, restless, depressed, that everything was an effort, and worthless.

Results were most pronounced when looking only at neighborhoods below the poverty line, with feelings of depression among residents who lived near green lots decreasing significantly—by more than 68 percent.

Analyses of the trash clean-up intervention compared to no intervention showed no significant changes in self-reported mental health.

"The lack of change in these groups is likely because the [trash](#) clean-up lots had no additional green space created," said co-author John MacDonald, Ph.D., a professor of criminology and sociology at Penn. "The findings support that exposure to more natural environments can be part of restoring mental health, particularly for people living in stressful

and chaotic urban environments."

The study shows transforming blighted neighborhood environments into green space can improve the trajectory of the residents' mental health, the authors said. Adding green space to neighborhoods should be considered alongside individual treatments to address [mental health problems](#) in low resource communities. Additionally, greening is an affordable approach, costing about \$1,600 per vacant lot and \$180 per year to maintain. For these reasons, the authors said, vacant lot greening may be an extremely attractive intervention for policy makers seeking to address urban blight and promote health.

"Greening vacant land is a highly inexpensive and scalable way to improve cities and enhance people's health while encouraging them to remain in their home neighborhoods," said senior author Charles C. Branas, Ph.D., chair of Epidemiology at Columbia University and an adjunct professor in the department of Biostatistics and Epidemiology at Penn's Perelman School of Medicine. "While mental health therapies will always be a vital aspect of treatment, revitalizing the places where people live, work, and play, may have broad, population-level impact on [mental health](#) outcomes."

More information: *JAMA Network Open*,
jamanetwork.com/journals/jamanetnetworkopen.2018.0298

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