

Abandoned house repairs reduced nearby gun violence

Installing working windows and doors, cleaning trash, and weeding at abandoned houses led to safety improvements and should be considered in efforts to create healthy communities, according to researchers from the University of Pennsylvania and Columbia.



John MacDonald of the Department of Criminology and Eugenia South of the Perelman School of Medicine.

Installing new doors and windows, trash cleanup, and weeding at abandoned houses in Philadelphia led to substantial drops in nearby gun violence, according to a new study from the University of Pennsylvania and Columbia University published in *JAMA Internal Medicine*. The findings suggest that fixing dilapidated, abandoned houses is an [inexpensive intervention](https://pubmed.ncbi.nlm.nih.gov/27736217/) (<https://pubmed.ncbi.nlm.nih.gov/27736217/>) that local governments can add to their prevention efforts to address the current gun violence crisis.

“Decades of disinvestment due to structural racism has led to the physical deterioration of many segregated Black urban neighborhoods,” says Eugenia C. South, an assistant professor of emergency medicine, faculty director of the Penn [Urban Health Lab](https://www.urbanhealthlab.org/) (<https://www.urbanhealthlab.org/>), and lead author of the study.

“Abandoned houses often have crumbling facades, blown-out windows, doors covered with plywood, and an accumulation of trash on the property. Our study highlights how these houses have implications far beyond just the aesthetics of a neighborhood—and how simple, structural fixes to these homes can make the neighborhoods safer and, by extension, the people healthier.”

Research shows that abandoned houses can affect the health and safety of the neighborhoods in which they are located in a number of ways. For instance, they are often easy to enter, and can be a location of illegal activity, including the storage of firearms. A concentration of abandoned houses has been associated with [violence \(https://www.hindawi.com/journals/isrn/2012/246142/\)](https://www.hindawi.com/journals/isrn/2012/246142/) and [substance use \(https://pubmed.ncbi.nlm.nih.gov/15629682/\)](https://pubmed.ncbi.nlm.nih.gov/15629682/). Residents often point to these spaces as [fracturing social ties between neighbors \(https://www.science.org/doi/10.1126/science.277.5328.918\)](https://www.science.org/doi/10.1126/science.277.5328.918) and [contributing to poor mental health \(https://link.springer.com/article/10.1007/s11524-012-9782-7\)](https://link.springer.com/article/10.1007/s11524-012-9782-7).

For this study, which began in June 2017 and finished in February 2020, abandoned houses across the city of Philadelphia were randomly selected and put into one of three trial arms. The first group received a full remediation including new window and door installations, trash cleanup, and weeding; the second group received trash cleanup and weeding only; the third group received no interventions, serving as a control. In total, 258 abandoned houses were included in the study. The neighborhoods where the study took place were inhabited by predominantly Black and low-income residents.

The trash cleanup intervention included removal of debris and weeding in front of the house, including the sidewalk, and reporting graffiti to the city for removal. During the post-intervention period, maintenance was performed for houses in the first two groups every two and a half months; this included reinstalling stolen windows and doors at 10 houses.

“This citywide randomized controlled trial is a powerful piece of scientific evidence showing that place-based interventions can improve health and safety, even for some of our most challenging crises like gun violence,” says Charles Branas, Gelman Professor and chair of the Department of Epidemiology at Columbia University, and an adjunct professor of epidemiology at Penn Medicine. “This is the first time that the effects of abandoned house remediation have been studied in a truly scientific manner and opens the door for more academic research that can provide policymakers with concrete evidence that these interventions work and should be seriously considered.”

To measure gun violence around the abandoned houses, researchers evaluated publicly available [Philadelphia Police Department databases \(https://www.phillypolice.com/crime-maps-stats\)](https://www.phillypolice.com/crime-maps-stats) for instances of weapons violations, gun assaults, and shooting incidents between January 2017 and August 2020.

Compared to blocks around the control houses, blocks around the homes that received the full intervention showed an 8.43% reduction in monthly weapons violations, a 13.12% reduction in gun assaults, and a 6.96% reduction in shootings after the intervention. The blocks around the homes that only received trash cleanup and weeding showed no change in gun violence compared to control houses. The authors also evaluated the impact of abandoned house remediation on illegal substance use and trafficking using police data and found no reliable impact for any intervention.

This publication adds to the growing body of research by this team, which includes John MacDonald, a professor of criminology at the University of Pennsylvania and principal investigator for the study. They've illustrated the efficacy of place-based interventions—such as [vacant lot cleaning and greening](https://www.pennmedicine.org/news/news-releases/2018/july/greening-vacant-lots-reduces-feelings-of-depression-in-city-dwellers-penn-study-finds?_ga=2.101901192.802970076.1666617449-1393415762.1613570591) (https://www.pennmedicine.org/news/news-releases/2018/july/greening-vacant-lots-reduces-feelings-of-depression-in-city-dwellers-penn-study-finds?_ga=2.101901192.802970076.1666617449-1393415762.1613570591) and [structural repairs](https://www.pennmedicine.org/news/news-releases/2021/july/city-funded-housing-repairs-in-low-income-neighborhoods-associated-with-drop-in-crime?_ga=2.177340460.802970076.1666617449-1393415762.1613570591) (https://www.pennmedicine.org/news/news-releases/2021/july/city-funded-housing-repairs-in-low-income-neighborhoods-associated-with-drop-in-crime?_ga=2.177340460.802970076.1666617449-1393415762.1613570591) to homes in low-income neighborhoods—in improving [health](https://onlinelibrary.wiley.com/doi/abs/10.1002/ajcp.12232) (<https://onlinelibrary.wiley.com/doi/abs/10.1002/ajcp.12232>) and [safety](https://pubmed.ncbi.nlm.nih.gov/16203075/) (<https://pubmed.ncbi.nlm.nih.gov/16203075/>) in predominantly Black neighborhoods.

South and Penn colleagues are currently overseeing a wide-ranging research effort, [supported by a nearly \\$10 million grant from the National Institutes of Health](https://www.pennmedicine.org/news/news-releases/2021/october/penn-researchers-to-study-the-impact-of-environmental-and-economic-interventions) (<https://www.pennmedicine.org/news/news-releases/2021/october/penn-researchers-to-study-the-impact-of-environmental-and-economic-interventions>), spanning 60 predominantly Black neighborhoods in Philadelphia, to measure interventions addressing both environmental and economic injustices on health and well-being. Most recently, South and her Urban Health Lab partnered with the Children's Hospital of Philadelphia and other community partners to launch [Deeply Rooted](https://www.pennmedicine.org/news/news-releases/2022/may/penn-medicine-and-chop-launch-initiative-to-improve-health-and-wellbeing-in-philadelphia?_ga=2.219117853.525633785.1666212650-1393415762.1613570591) (https://www.pennmedicine.org/news/news-releases/2022/may/penn-medicine-and-chop-launch-initiative-to-improve-health-and-wellbeing-in-philadelphia?_ga=2.219117853.525633785.1666212650-1393415762.1613570591), a multi-million dollar community-academic collaborative that leverages the healing power of nature to promote health and wellbeing in West and Southwest Philadelphia, including through vacant lot cleaning, tree planting, and micro grants for community greening projects.

“While abandoned housing remediation does not directly address the policies leading to segregation, disinvestment, and poor health in poor, Black neighborhoods, our research suggests that such an intervention does influence upstream contributors to gun violence,” MacDonald says. “These results are promising and warrant further research into home repairs and their impact on crime and perceived safety in low-income neighborhoods.”

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