



Justice Insights Series: Research Briefs for Policy and Practice

How Community Social Vulnerability Shapes Where Shootings Happen

Key Takeaways

- Neighborhoods with higher social vulnerability experienced more firearm violence of every kind, including overall, fatal, and nonfatal shootings.
- A neighborhood's economic hardship—characterized by poverty, unemployment, low income, and low education—was the vulnerability factor most consistently tied to shootings.
- The economic conditions of surrounding neighborhoods were stronger predictors of shootings than a neighborhood's own economic conditions.

Why This Matters

Firearm violence remains a serious problem across the United States, even though it has declined since 2022. Fatal shootings receive most of the attention, but nonfatal shootings occur nearly four times as often and are frequently left out of research and data collection. Excluding nonfatal shootings leads to an incomplete picture of the true harm firearm violence causes, so practitioners need to understand where both types of shootings cluster and what community conditions surround them.

Earlier research on firearm violence established that shootings cluster in disadvantaged areas but measured that disadvantage in different ways. One study of four Midwest cities found shootings heavily concentrated in a small share of census blocks and showed that fatal and nonfatal shootings do not always overlap in the same places. Another study in Kansas City, Missouri, found that concentrated disadvantage predicted higher counts of both fatal and nonfatal shootings. Additional research tied fatal shootings to factors such as abandoned homes and residential turnover and linked nonfatal shootings to concentrated disadvantage and higher shares of Black residents. Together, these studies point to the same conclusion: fatal and nonfatal shootings tend to occur in the same disadvantaged areas, but the overlap is imperfect, suggesting that the two may follow somewhat different community patterns.

This study fills a gap by testing (1) whether the Centers for Disease Control and Prevention's (CDC's) Social Vulnerability Index (SVI)—a standardized, widely available measure—is associated with fatal and nonfatal shootings and (2) whether the vulnerability of nearby neighborhoods matters.

How the Study Worked

The researchers studied 170 neighborhoods (census tracts) in Kansas City. They combined three data sources: the CDC's SVI for 2018, neighborhood details from the American Community Survey (2015 to 2019), and shooting victim data from the Kansas City Police Department for 2015 through 2019. The researchers counted shooting victims rather than incidents and separated them into fatal, nonfatal, and overall totals. Across all neighborhoods, the average was about 17 shooting victims, including roughly 4 fatal and 14 nonfatal shooting victims.

The SVI combines 15 community measures into four themes: economic status; household makeup and disability; race, ethnicity, and language; and housing and transportation. Higher scores mean more vulnerability. The researchers compared

these scores against shooting counts while controlling for other local crime, such as assaults and robberies, to ensure that differences in other crime did not affect the results.

In addition, the researchers built measures that capture the vulnerability of neighboring areas, not just the neighborhood being studied. This measure allowed them to test whether shootings in a neighborhood are shaped by the conditions of the surrounding areas.

What Was Learned

- **More vulnerable neighborhoods had more shootings.** Every measure of social vulnerability was tied to higher shooting counts. A one-unit rise in overall vulnerability was linked to about 22 percent more shootings overall.
- **Economic hardship was the strongest and most consistent factor.** When all four vulnerability themes were tested together, the economic theme was the only one that stayed significant for overall, fatal, and nonfatal shootings.
- **Surrounding neighborhoods showed stronger associations than the neighborhood itself.** The economic vulnerability of nearby areas was associated with a larger rise in shootings than a neighborhood's own economic vulnerability and was linked to roughly triple the fatal shooting rate.
- **Fatal and nonfatal shootings had different spatial patterns.** Being surrounded by neighborhoods high in minority and language vulnerability was associated with fewer fatal shootings, while being surrounded by neighborhoods high in household and disability vulnerability was associated with fewer nonfatal shootings.

What This Means in Practice

The clearest message for justice professionals is that economic conditions—both in a neighborhood and in the surrounding areas—are central to where shootings occur. Because vulnerability extends across boundaries, efforts aimed at a single hotspot may overlook the surrounding conditions associated with the violence. The researchers suggest that directing need-based resources to vulnerable communities may better address the conditions associated with firearm violence. In addition, because the SVI is publicly available and applied the same way everywhere, the researchers suggest that it can help agencies identify which vulnerabilities are tied to violence in a given place and target need-based resources. Its consistent application makes it easier to compare communities than measures that differ from study to study.

The researchers emphasize that these findings are correlational and cannot prove that vulnerability causes shootings. The study covers one city over a set period from 2015 through 2019, so the patterns may not generalize to other places or periods. The researchers also describe the SVI as a complement to, rather than a replacement for, established measures of disadvantage, and they call for testing it in other cities and against other crime types before drawing broad conclusions.

Source article

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