



ENVIRONMENT AND CRIME IN THE INNER CITY DOES VEGETATION REDUCE CRIME?

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DESIGN ISSUE

This article reports on research conducted by the authors in an inner-city neighborhood of Chicago to examine the relationship between crime and vegetation. The authors hypothesize that, contrary to traditional perception, vegetation, in particular high-canopy trees and grass, deters crime in poor inner-city neighborhoods and, specifically, that higher levels of vegetation will be associated with lower levels of property crimes, violent crimes and total crimes.

BACKGROUND

The authors provide a review of the historical background that dates to the 13th Century, wherein vegetation was perceived to be a significant abettor of crime. The authors also examined the research literature to re-evaluate this notion.

Studies show that dense vegetation is linked with fear, fear of crime and danger. In particular, research probing fear of crime revealed that spaces whose visibility was limited by vegetation were perceived as non-secure. Two studies, one involving the police and the other criminals, identified dense vegetation (large shrubbery, underbrush, and thick woods) as facilitative of crime-related actions, implying that greenery that obstructed views provided support for crime. Reasoning that not all types of vegetation obstruct views, the authors propose that well-maintained grassy areas, short flowering bushes, and widely spaced high-canopy trees preserved visibility, and hence, did not promote crime.

Moreover, following the above analysis, the authors propose that vegetation in poor urban neighborhoods can deter crime by: (1) Increased informal surveillance of neighborhood spaces, (2) increased implied surveillance by residents, and (3) mitigating residents' mental fatigue. Surveillance was implied when more people use outdoor spaces, which resulted in less crime when compared with low surveillance neighborhoods. Other studies showed that residential vegetation acted as a "territorial marker" and dissuaded intruders and crime.



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The authors also discussed three psychological precursors to violence: irritability, inattentiveness, and impulsiveness, all of which are symptoms of mental fatigue. Objective studies show that contact with vegetation, natural or cultivated, can dissipate mental fatigue, and subsequently, it is suggested, decrease violent behavior.

In support of their hypothesis, the authors reviewed several comparative studies and inferred that: (1) images of green residential locales instilled a higher sense of safety; (2) residents of greener neighborhoods felt safer than those in non-green areas; (3) street blocks with well-maintained gardens reported fewer incivilities than neighborhoods with gardens not maintained as well; (4) landscaped communities reported fewer incidences of graffiti and/or vandalism; (5) outdoor spaces with vegetation in areas of public housing experienced less graffiti, vandalism, and littering than more barren areas; (6) neighborhoods with greener outdoor spaces reported fewer noisy, disruptive people, strangers, and illegal activity; and (7) Alzheimer patients in long-term facilities with outdoor gardens exhibited less violent behavior when compared to patients whose facilities had fewer or no green spaces. The authors conclude from their literature review that there is enough circumstantial evidence to support their hypothesis that vegetation deters crime.

RESEARCH METHOD

This research was conducted in the Ida B. Wells public housing development in inner-city Chicago, Illinois. The study included 98 similar buildings.

Data on reported crime were obtained from the Chicago Police Department. A summary of three crime indices was prepared – property crimes, violent crimes and total crimes. Aerial and ground-level photographs of the neighborhood were obtained to determine the density of vegetation. Four other factors were identified and considered in the analyses as likely to affect crime: number of units, number of occupied units, vacancy rate, and height of building. A series of bivariate and multiple regression analyses were conducted to examine the association between vegetation and crime.

FINDINGS

Statistical analyses of the data revealed that, as hypothesized, there was a negative relationship between density of vegetation and the three crime indices; in other words, the greener a building's environs, the lower the number of reported crimes. In fact, buildings that had the densest coverage of vegetation reported 52% fewer total crimes when compared with buildings that had the least green surroundings.



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The authors also considered confounding factors (number of units, vacancy rate, number of occupied units per building, and building height) that might be thought to affect the crime rate. However, even controlling for these potential confounding factors, vegetation demonstrated a significant negative association with crime. Further analyses suggested that the number of units and amount of vegetation are the best predictors of crime in the study.

IMPLICATIONS FOR DESIGN PRACTICE

For design teams embarking on a new residential, urban design, landscape or site planning project, consider the following:

- Vegetation is a heterogeneous concept. It affects crime rate variably depending on specific attributes. The key factors are quantity and visibility. When visibility is reduced owing to vegetation, it may lead to increased fear of crime and/or actual crime, while extensive, well-maintained grassy areas, short flowering bushes, and widely spaced high-canopy trees appear to reduce crime. Evidence shows that more the vegetation (while preserving visibility) lower the crime rate, in residential neighborhoods.
- Thus, consider providing extensive landscaping, but avoid dense vegetation (large shrubbery, underbrush, and thick woods) in areas where visibility is important.

LIMITATIONS

This study constitutes a natural experiment, and not a true experiment. The authors suggest an intervention study as a follow up that will enable a true experimental design. Data suggests that a non-linear relationship may exist between vegetation and crime, which can be examined in an intervention study. This study did not have the opportunity to examine the influence of territorial markers (symbolic barriers). Other issues left for future studies include widening the variety of crime types and examining the additional impact of resident involvement in landscaping on crime rate.

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