Environmental Strategies for Disease, Violence, and Injury Prevention in Urban Areas

Michelle C. Kondo, PhD
USDA Forest Service Urban Field Stations

https://www.nrs.fs.fed.us/ufs/
Health Outcomes Tied to Urban Nature Exposure

- Mortality
- Heart rate
- Crime & violence
- Post-operative recovery
+ Attention
+ Mood
+ Mental health
+ Birth weight
Population-Level Nature-Health Study Exposure Estimation Method

Electronic Medical Records +
Vacant Properties

- Trash dumping
- Rodents
- Pathogens
- Illicit activity
- Fear, anxiety, stress, depression

image: http://groundedinphilly.org/
Neighborhood Physical Environment:
- Food & rec resources
- Built Environment
- Natural spaces
- Quality of housing
- Services

Neighborhood Social Environment:
- Safety/violence
- Social connections
- Local Institutions
- Norms

Segregation by race & SES
Resource inequalities

Stress
Behavior

Health

Personal characteristics: biology, material & psychosocial resources

New Orleans, LA

Key Themes from focus groups and interviews:

- Blight, violence, and substance use are key issues for residents
- Concern about the lack of affordable housing and about effects of renters
- Importance of neighborhood conditions on health
- Need for sustainable, youth engaged solutions to blight

“Some residents deal with chronic health [conditions] and violence in our neighborhood causes added stress that can make folks drink more and smoke more and feel major anxiety.”

- male resident, ~45 years

“If the neighborhood was more attractive, we would have less violence. Blight makes me anxious.”

- female resident, ~67 years
The Health Impact Pyramid

Can urban place- and nature-based interventions improve public health and safety?

green stormwater infrastructure

vacant-lot greening
Green Stormwater Infrastructure as a Public Safety Intervention in Philadelphia 2000-2012

- 52 treatment sites: GSI locations
  - Construction dates: 2000 – 2012
- 186 “waitlist” control sites
- Randomly matched 1:3 to 1:6 within 4 city sections
- Crime locations (14 types)
- Health data: High stress, blood pressure, cholesterol

Green Stormwater Infrastructure as a Public Safety Intervention in Philadelphia 2000-2012
Green Stormwater Infrastructure as a Public Safety Intervention in Philadelphia 2000-2012

- Significant reductions (up to 27%) in narcotics possession around GSI sites
- No difference in stress, instance of high cholesterol or blood pressure

Contractor vs. Community Greening in Youngstown, OH 2011-2014

v1.0: “contractor clean & green”  v2.0: “community reuse”


Photos: Youngstown Lots of Green Overview Report
244 greened lots randomly matched with 959 control vacant lots

Contractor vs. Community Greening in Youngstown, OH 2011-2014

- Reductions in burglaries and robberies (all lots & contractor clean-and-green lots)

- Reductions in assaults and violent felonies (community reuse lots)

- Spill-over crime-reduction effects into neighboring areas, especially with community reuse lots


Photos: Youngstown Lots of Green Overview Report
Vacant Lot Greening Studies

1. Retrospective Quasi-experimental
2. Prospective Pilot RCT
3. Youngstown Quasi-experimental
4. Prospective Citywide RCT

Outcomes: crime, safety, stress, mental health
Methods:
- 541 vacant lots randomly assigned to treatment and control
- Outcomes: crime/violence data; health outcomes from 445 participants; ethnographic observations
- 38-month study period
- Intention to Treat Analysis (ITT)

Funders:
- National Institute on Alcohol Abuse and Alcoholism (NIAAA)
- National Institute on Drug Abuse (NIDA)
- CDC

Findings:

- Significant reductions in crime overall (−13%), gun violence (−29%), burglary (−22%), and nuisances (−30%) in neighborhoods below the poverty line

- Significantly reduced perceptions of crime, vandalism, and safety concerns; and significantly increased use of outside spaces for relaxing and socializing
Ethnographic case studies of reactions by neighbors to greening interventions in two neighborhoods:

1) Rapid economic development
   - Racialized tension
   - Hostility to greening
   - “Pretty” vacant blocks up to $5k rent

2) No signs of development
   - Positive response to greening
   - Mostly vacant blocks, more raids

3) Both neighborhoods
   - Drug sellers use vacant lot faces
   - Overgrown vacant lots concealed routine drug use, escape routes during police raids
   - Weapons stashed in cars parked in front of vacant lots
► 442 participants surveyed before and after intervention

► Significant decrease in depression and feeling of worthlessness for participants living near treatment lots

► No change in feeling nervous, hopeless, restless, that everything is an effort, or poor mental health

How do we think it works?

Theories:

- Busy streets
- Broken windows
- Routine activities
- Situational crime prevention
- Crime prevention through environmental design (CPTED)

Disorder

Fear & withdraw

More serious crime

Weak social control
How do we think it works?

“Just as a broken window left untended in a building is a sign that nobody cares, leading typically to more broken windows—more damage—so disorderly conditions...left untended in a community are signs that nobody cares and lead to fear of crime, more serious crime, and urban decay.”

- James Q. Wilson and George Kelling, 1982
Busy Streets: Where youth can grow up in a safe and healthy context where they observe positive behaviors such as neighborliness, experience trust among neighbors, and develop a sense of community where neighbors work together to achieve common goals.

Is community engagement in neighborhood improvements a vital ingredient toward building busy streets?

http://yvpc.sph.umich.edu/projects/
- Multisite, quasi-experimental, non-equivalent control group design

- The three groups of parcels:
  1. Community and Youth Engaged Parcel Improvement & Mowing (Lots of Green, Clean & Green programs)
  2. Professional Mowing
  3. No (Organized) Mowing

- Outcomes
  - Parcel assessments (1x per year)
  - Systematic Social Observations (3-5x per year)
  - Neighborhood Life Survey (1 Pre & 2 Post)
  - Crime Incidents (Pre & Post)
  - Assault Injuries (Pre & Post)
Flint, MI

Community-Engaged Care of Vacant Lots

40%
Fewer Assaults & Violent Crimes

“innovative economic growth in cities will inevitably have a destructive impact on poor residents...”

- Connecting local residents to nearby employers is critical
- Growing local businesses (particularly minority-owned firms)
- Improving neighborhood schools
- Working with residents to create quality places in which a diversity of people feel a sense of pride and attachment

Insights & Challenges

“the positive I see with youth being involved is that they feel like the space that previously was not inviting to them and that they were oftentimes told to stay away from, it feels different now. It feels welcoming. They were involved with cleaning it up, so it feels like it's for them, so I think the advantage is having more clean, green spaces for kids to play outside of the street…”

“The biggest thing is to make sure to always talk with the community. A lot of time organizations come in with all the right intentions, but they may quickly forget who they are working for. Especially in cities (where) conditions are a product of poor policy and racism. Obviously residents did not choose this.”


- Resources
- Political Will
- Planning
- Sustainability
- Engagement
- Partnership
- Context
Environmental Strategies for Disease, Violence, and Injury Prevention in Urban Areas

Michelle C. Kondo, PhD

Research Social Scientist USDA Forest Service Northern Research Station
Philadelphia Field Station #phillyfieldstation michelleckondo@fs.fed.us @usfs_nrs @MichelleCKondo