



We Are Where We Live: How Neighborhood Disorder and Crime Impact Physical Activity, Weight and Racial Disparities in Health

Investigating the impact of neighborhood disorder and crime on physical activity and weight status

SUMMARY

Researchers at the University of Pennsylvania School of Medicine analyzed:

- The influence of neighborhood physical disorder and crime on levels of physical activity and obesity among people living in Philadelphia.
- The extent to which neighborhood factors contribute to racial disparities in health.

They also compared traditional methodological approaches to defining neighborhood characteristics with more novel approaches.

Key Findings

- A higher level of neighborhood physical disorder was significantly associated with an increased risk of obesity.
- Neighborhood crime was not associated with weight status or level of physical activity.
- African Americans were less physically active than Whites regardless of the characteristics of their neighborhoods.
- Use of administrative units and geographic information systems (GIS) technology to characterize neighborhoods yielded similar and consistent results.

This project was part of the Robert Wood Johnson Foundation's (RWJF) *Active Living Research* program (for more information see [Program Results](#)). The program funds research that improves knowledge and policies regarding ways that environmental factors affect physical activity, particularly for children.

Funding

RWJF supported the project with a *solicited* grant of \$93,560 between October 2004 and October 2006.

THE PROBLEM

Studies by sociologists and criminologists have demonstrated that neighborhood disorder strongly contributes to fear and the perceived risk of crime among residents, according to a study published in 2002 in *Sociological Inquiry*. Neighborhood physical disorder refers to decline in appearance and functionality of buildings and lots. Neighborhood social disorder refers to criminal activity in the area.

Neighborhood disorder is linked to a feeling of powerlessness. Evidence suggests that self-efficacy is a determinant of physical activity, according to researchers at the University of Pennsylvania School of Medicine, making issues of neighborhood disorder important for people interested in improving physical activity.

African Americans, Hispanics and low-income people are more likely to be inactive than Whites and people with higher incomes. They are also more likely to reside in disadvantaged neighborhoods, but little is known about how neighborhood context affects their level of physical activity.

A few studies have examined the relationship between neighborhood problems and physical activity among the population in general. Evidence of an association between physical activity and the perception of crime and safety concerns is somewhat inconsistent, highlighting the need for further investigation.

Crime and the appearance or functionality of neighborhood buildings and lots are modifiable aspects of the environment. Understanding how these factors affect physical activity offers options for policy-makers seeking to increase physical activity and reduce health disparities.

CONTEXT

RWJF has developed three integrated strategies to reverse the childhood obesity epidemic: evidence, action and advocacy.

Evidence

Investments in building the evidence base will help ensure that the most promising efforts are replicated throughout the nation.

The Foundation's major research efforts in this area—*Active Living Research*, *Healthy Eating Research* and *Bridging the Gap*—are contributing to the nation's collective

knowledge about the changes to policies and to community and school environments that are most effective in increasing physical activity and improving nutrition for kids.

RWJF also seeks to evaluate innovative approaches under way in states, schools and communities across the country.

- For instance, RWJF supported an independent evaluation of efforts to implement [Arkansas Act 1220](#), which mandated a comprehensive approach to addressing childhood obesity in public schools.
- The Foundation also funded a separate initiative to analyze body mass index (BMI) data for all Arkansas public school students. Already, the BMI analysis has indicated that, in just three years, Arkansas has halted the progression of the epidemic in the state.

Action

RWJF's action strategy for communities and schools focuses on engaging partners at the local level, building coalitions and promoting the most promising approaches.

RWJF is working with the Food Trust, a Philadelphia-based advocacy organization whose mission is to ensure that everyone has access to affordable, nutritious food. The Food Trust has been [bringing supermarkets back to underserved communities in Pennsylvania](#), and with RWJF is working together to replicate those results nationwide.

RWJF is also working closely with the Alliance for a Healthier Generation (a partnership of the American Heart Association and the William J. Clinton Foundation) to support its efforts to improve nutrition, physical activity and staff wellness in schools nationwide.

Advocacy

As staff learns from the evidence and action strategies, RWJF shares results by educating leaders and investing in advocacy, building a broad national constituency for childhood obesity prevention.

RWJF supported the National Governors Association when Arkansas Governor Mike Huckabee designated wellness in schools, homes, and workplaces as his Chairman's Initiative for 2005–2006.

Through the *Leadership for Healthy Communities* initiative, RWJF works closely with national organizations that represent elected and appointed officials—such as the National Conference of State Legislatures and the U.S. Conference of Mayors—to educate their members about successful approaches to increasing physical activity and healthy eating among kids. The goal is to support leaders and decision-makers in their efforts to create healthier states, counties and cities.

THE PROJECT

This project was part of RWJF's *Active Living Research* program (for more information see [Program Results](#)). The program funds research that improves knowledge and policies regarding ways that environmental factors affect physical activity, particularly for children.

Virginia W. Chang, MD, PhD, and colleagues at the University of Pennsylvania School of Medicine analyzed data about weight and physical activity and data about neighborhood environment in order to:

- Determine the influence of physical and social disorder on levels of physical activity and weight status among people living in Philadelphia.
- Understand the extent to which neighborhood factors contribute to racial disparities in health.
- Compare traditional methodological approaches to defining neighborhood characteristics with more novel approaches.

Methodology

To ascertain weight status and physical activity levels among individuals and within and across racial groups researchers analyzed data on 7,000 Philadelphia residents who participated in the 2002 and 2004 [Southeastern Pennsylvania Household Health Survey](#), an ongoing community-based survey of health status, health care, health services and physical safety.

To ascertain neighborhood conditions and the extent of neighborhood disorder, researchers analyzed:

- Data from the 2000 U.S. Census.
- Data from the University of Pennsylvania [Cartographic Modeling Lab's Neighborhood Information System](#). This system provides data on vacancies, cleaned and sealed houses, imminently dangerous housing, off-site property owners, demolitions and other factors that characterize neighborhoods.
- Crime data from the Philadelphia Police Department.

To compare conventional methods of characterizing neighborhoods with more novel approaches, researchers constructed two measures of neighborhood characteristics:

- One set of measures was based on administrative units, such as census tracts that aggregate information into standard neighborhood units.

- One set of measures was based on more detailed and more labor-intensive, geographic information systems (GIS). The GIS allowed researchers to "place" individuals more precisely inside neighborhoods for research purposes.

Change concluded in the report to RWJF: "From a methodological standpoint, neighborhood-level variables defined according to conventional administrative units such as census tracts may function quite comparably to variables constructed with more resource-intensive methods [such as GIS] that place individual persons at the center of uniquely defined spheres of (neighborhood) influence."

FINDINGS

Chang presented the following preliminary findings of the study in a report to RWJF and in a personal interview:

- A higher level of neighborhood physical disorder was significantly associated with an increased risk of obesity. This was the case for a range of individual and neighborhood socioeconomic factors (such as income, race, etc.). (Report and personal interview)
- Neighborhood physical disorder was positively but only weakly associated with physical activity levels among women, but not among men. This is possibly because people living in these neighborhoods may be more reliant on walking as a means of transportation. (Report and personal interview)
- Neighborhood social disorder, or crime, was not associated with weight status or level of physical activity. (Report)
- Although African Americans were at higher risk of obesity than Whites, this increase was reduced by about 25 percent after adjusting for neighborhood disorder and neighborhood socio-economic status. (Report)
- African Americans were less physically active than Whites regardless of the characteristics of their neighborhoods. (Report)
- Use of administrative units and GIS technology to characterize neighborhoods yielded similar and consistent results. (Report)

Limitations

Chang noted the following limitation to the study in the research proposal:

- Like similar studies, this study is subject to potential bias wherein differences in outcomes result from differences in individual people who move into the neighborhood. For purposes of this study, however, it is reasonable to assume that neither active nor inactive people would choose to live in disordered neighborhoods.

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(Current as of date of the report; as provided by the grantee organization; not verified by RWJF; items not available from RWJF.)

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Chang VW, Hillier AE and Mehta NK. "Neighborhood Racial Isolation, Disorder and Obesity." *Social Forces*, 87(4): 2063–2092, 2009. Available [online](#).