Measuring the Effects of Crime on Walking

A Study by the Alan M. Voorhees Transportation Center

2017-18

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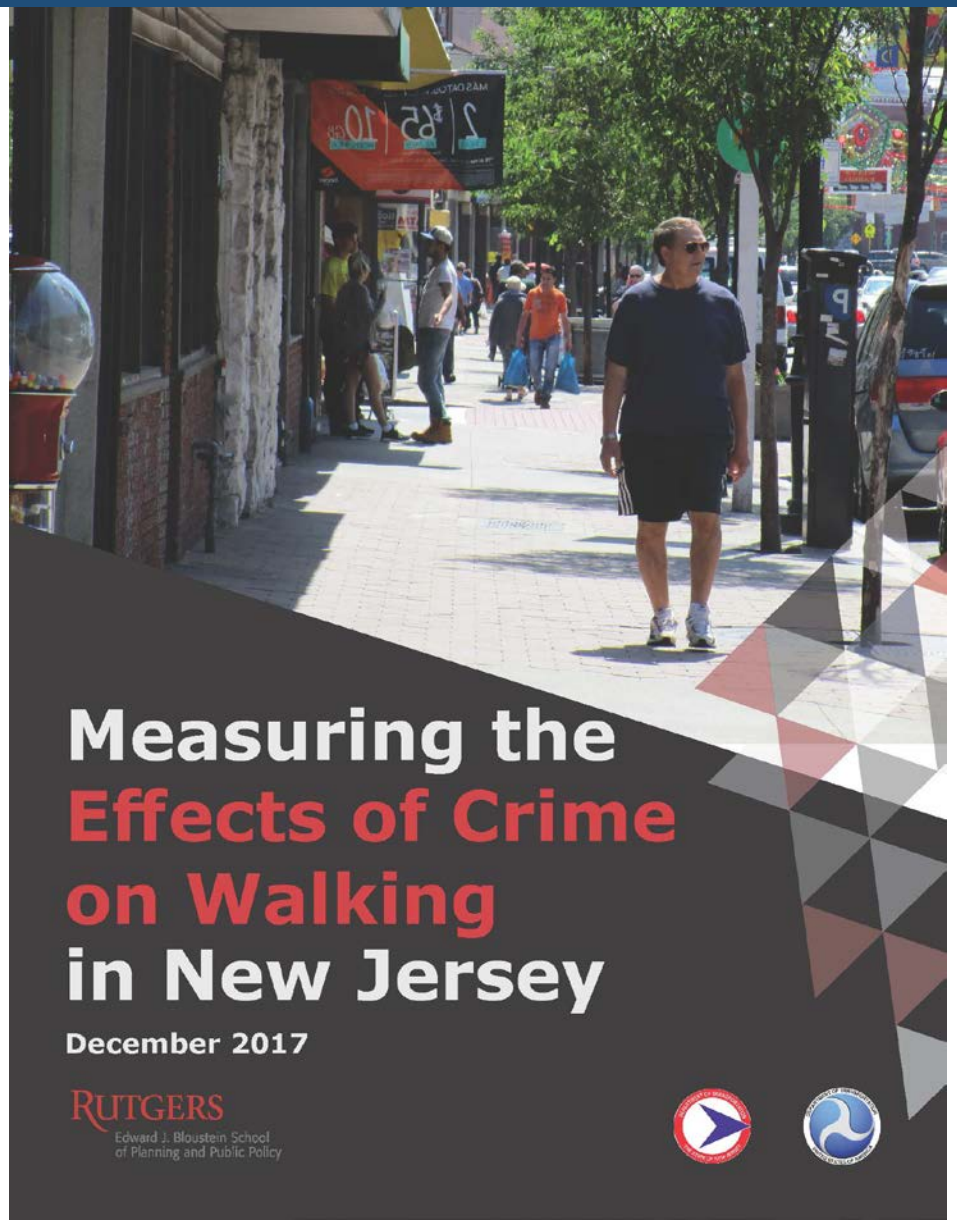
The Study Report



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Background

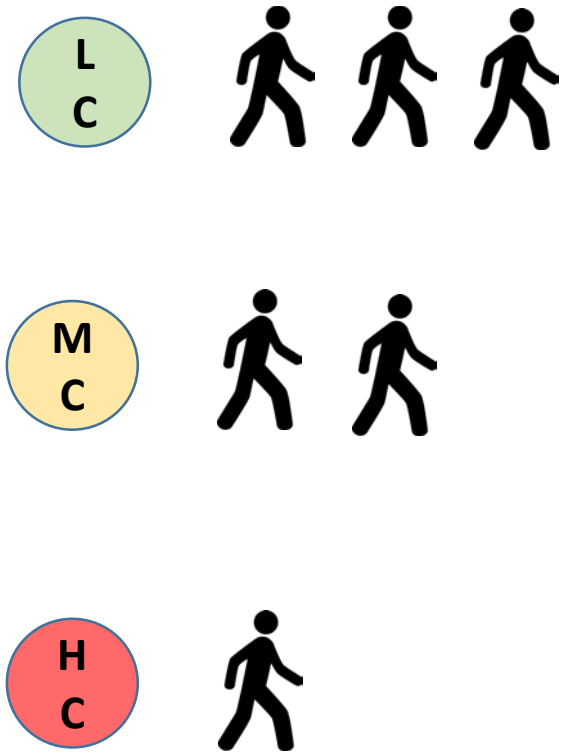
- Walking is beneficial to both physical and mental health (proven beyond doubt)
- Benefits can be achieved by walking anywhere
- Yet many people do not walk at all
- People in low-income communities are more walkable
- People there also have more ailments such as obesity & CVD
- Concern among some that people walk less there because of crime

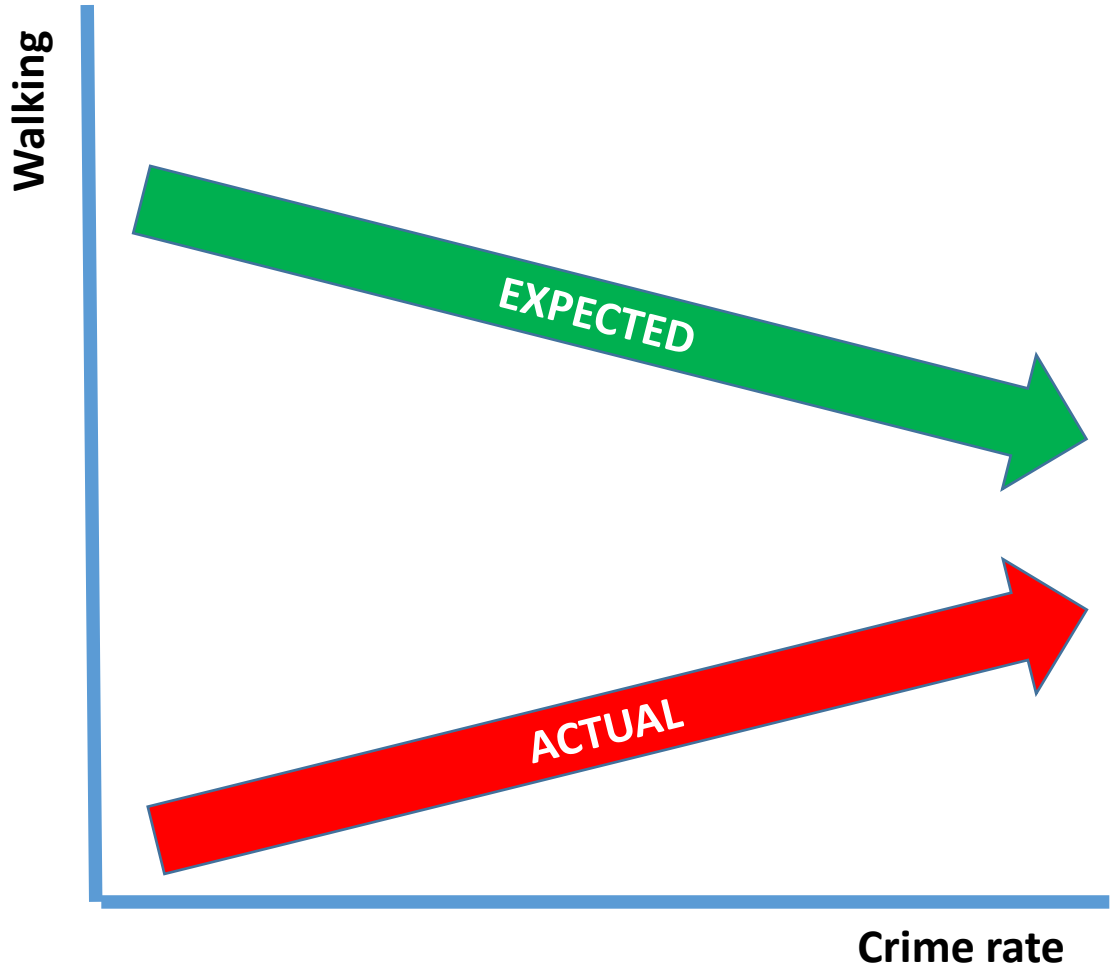
Walking in Less-Privileged Areas - Literature

- People walk more for transport but less for exercise
- People walk more in high-crime neighborhoods
- Some are appalled

- Theories
  - People walk more because of destinations
  - Activities that generate walking also generate crime

Relation between Crime and Walking





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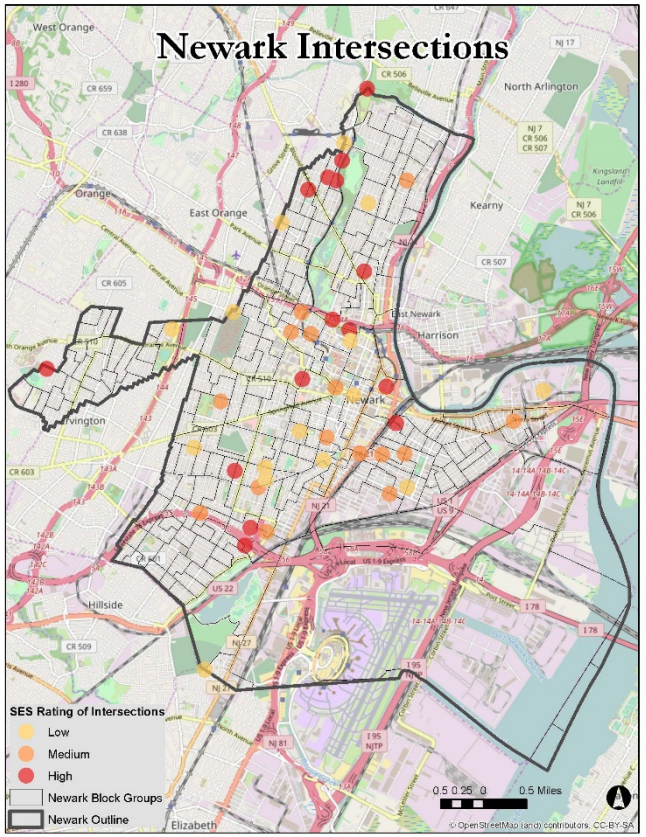
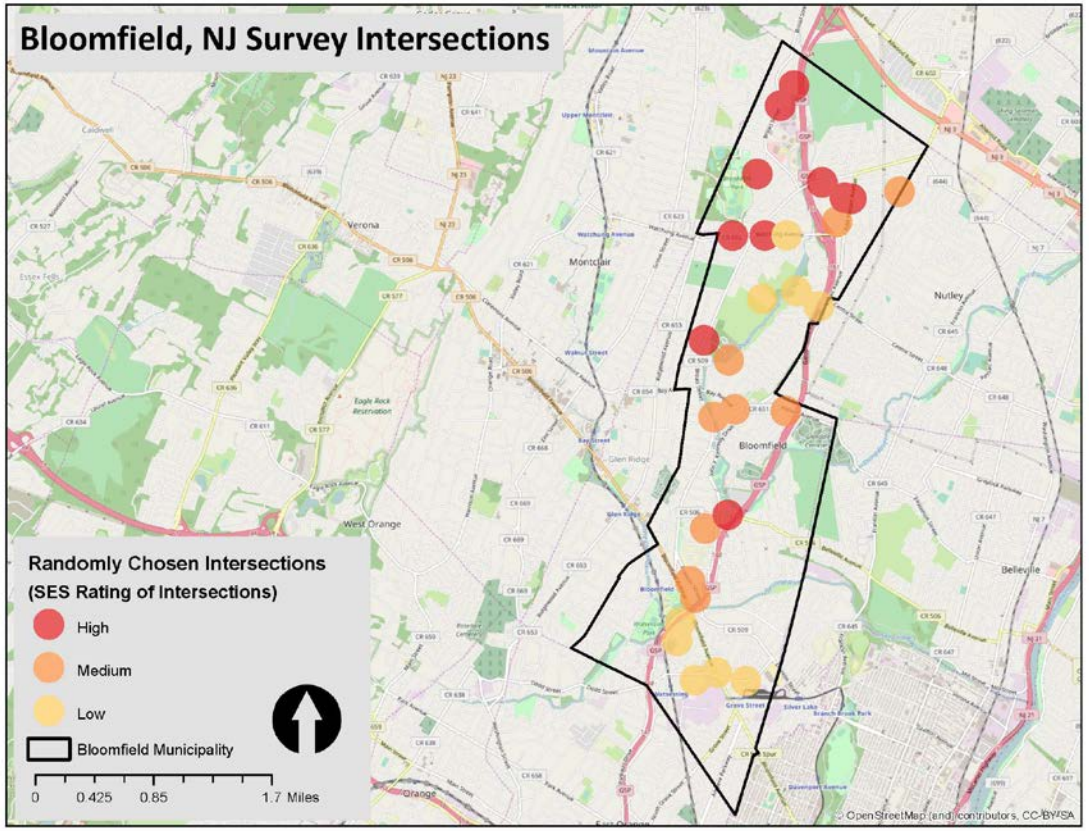
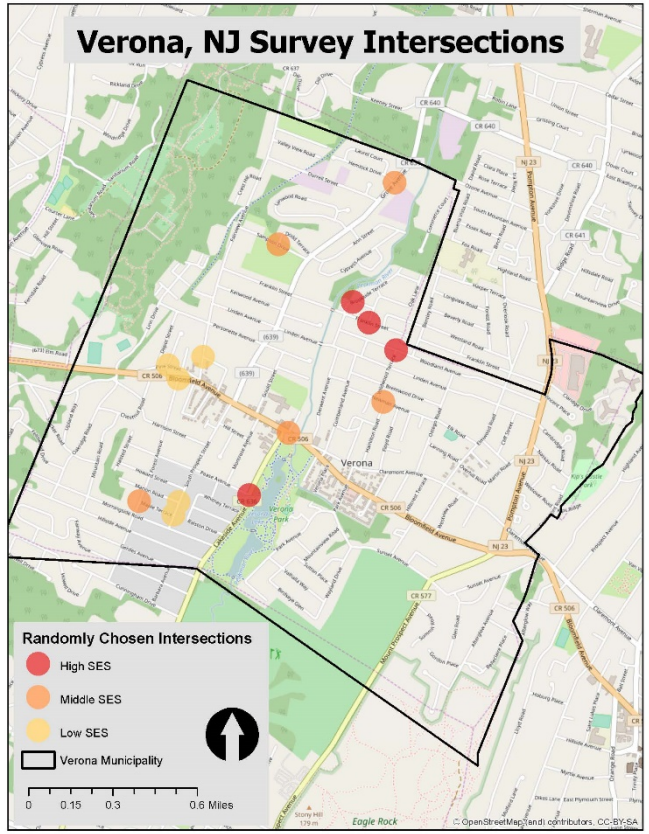
Survey Intersection Selection







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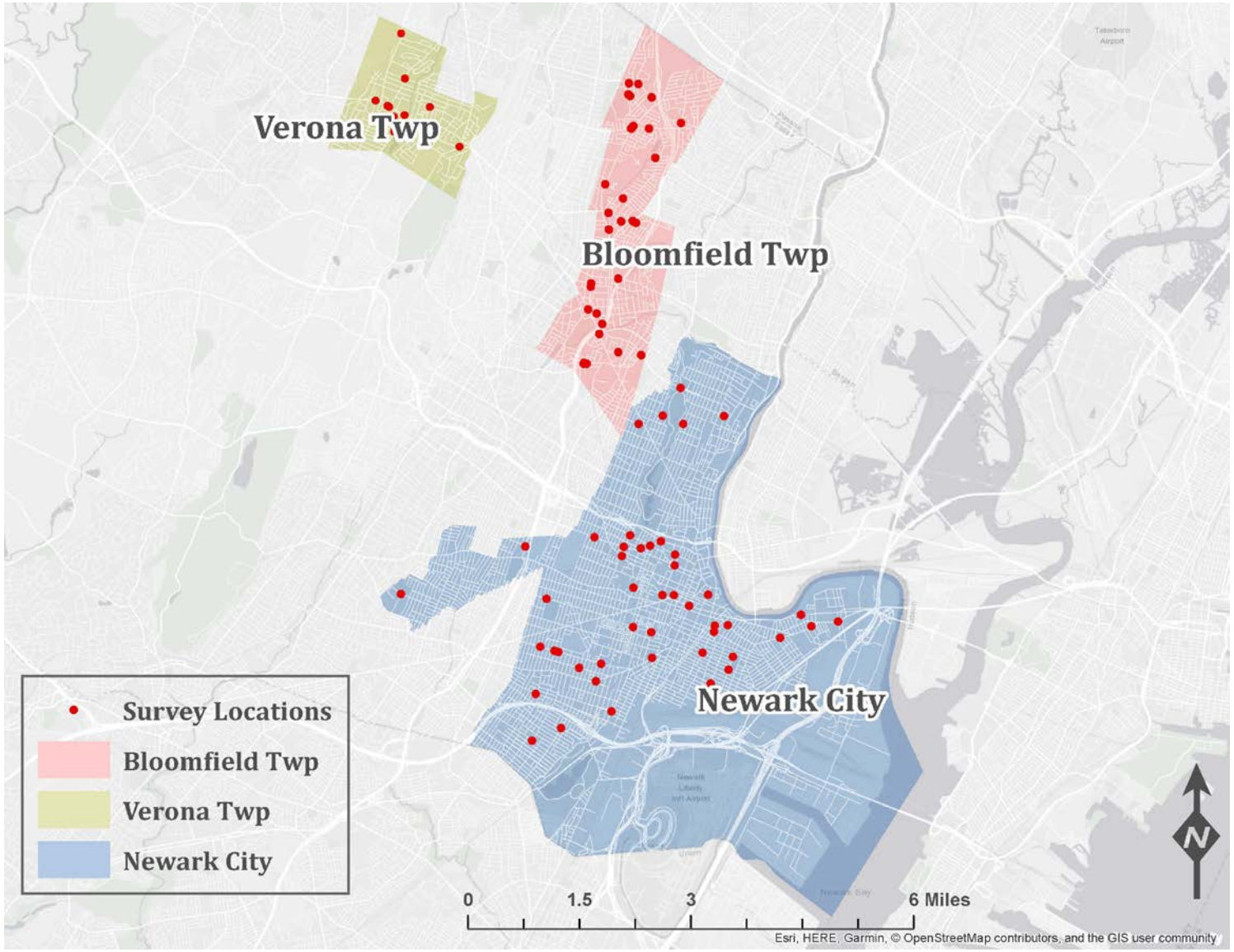
Selected Intersections



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Survey in Three Cities

1,173 persons responded

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We also Found what Others Found!

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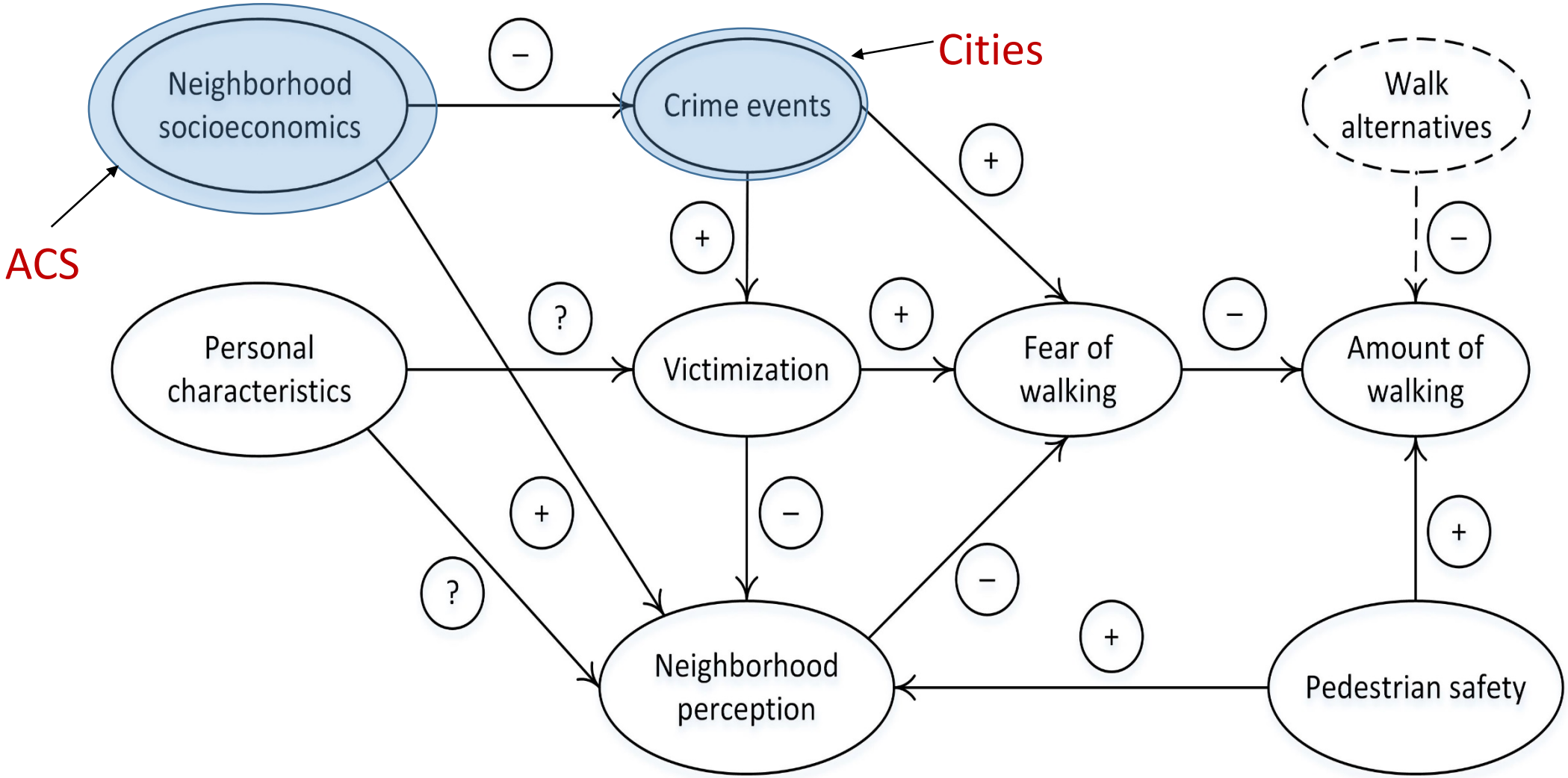
Two Ways to Conceptualize

Walking ← a, b, c, d (at the same time)

Walking ← a ← b, c ← d (sequentially)

Causation ≠ Association

Conceptualization



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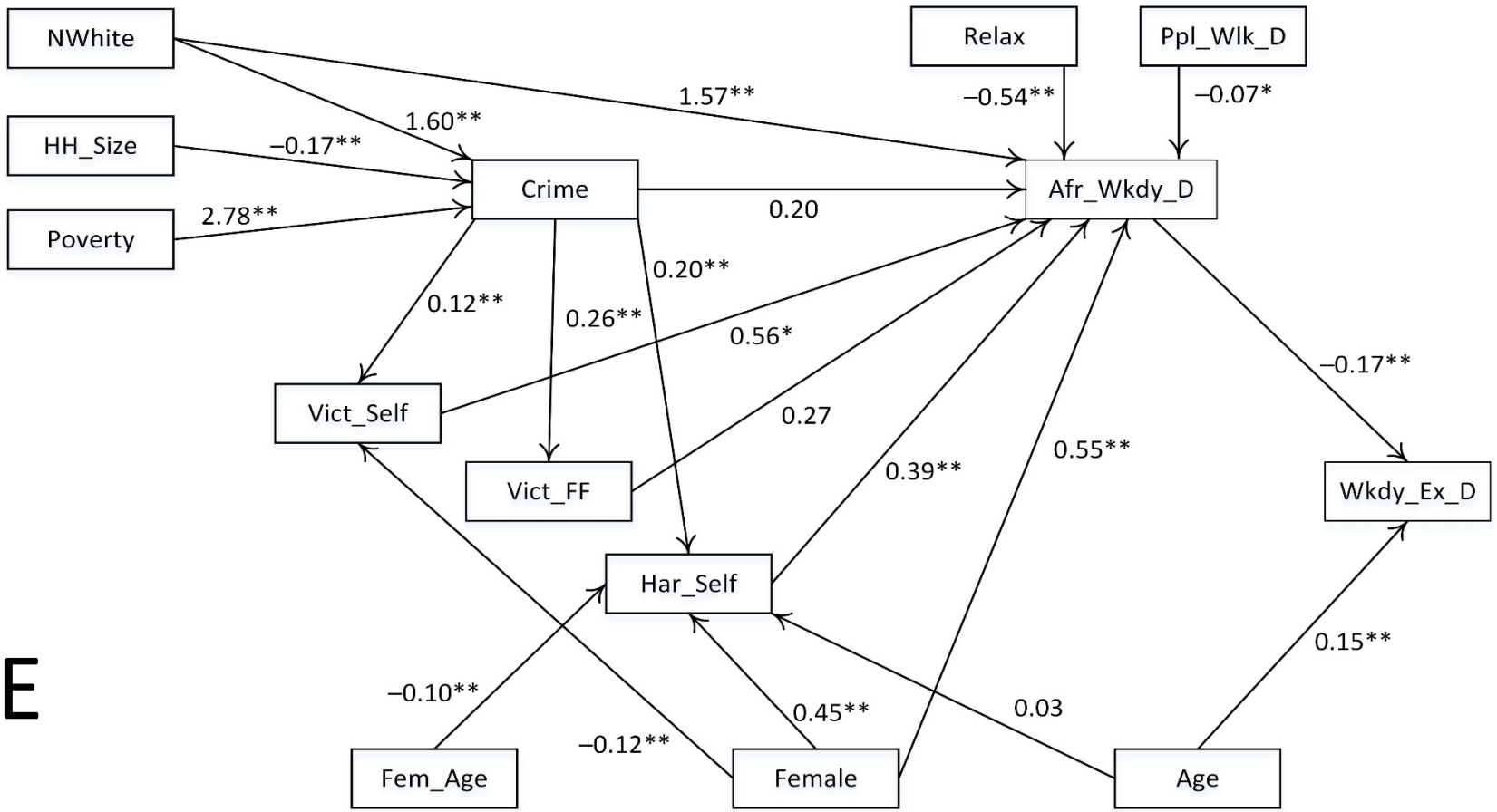
Path Analysis – Leisure Walk



DAYTIME

** Significant at 1% level

* Significant at 5% level

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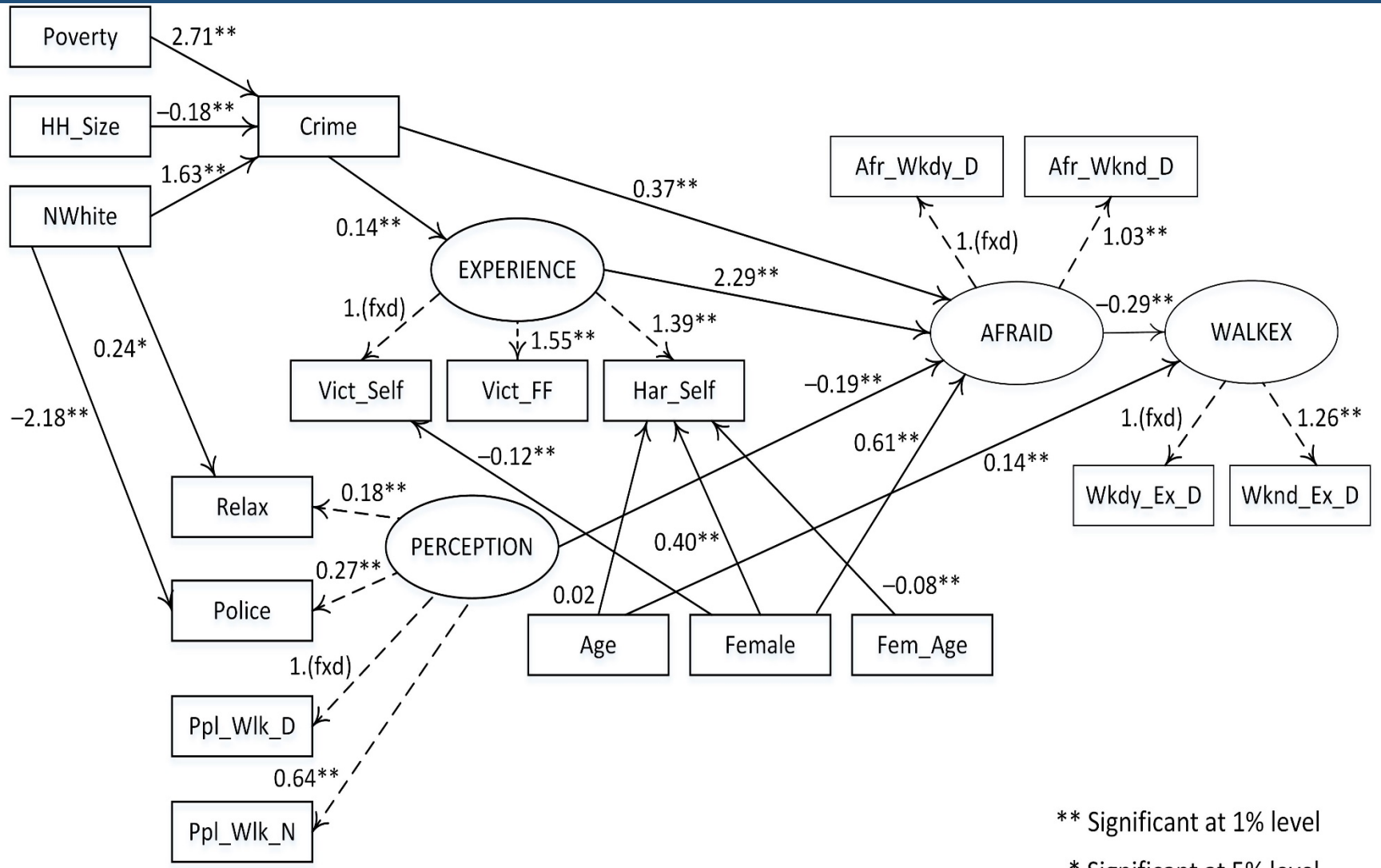
Structural Equation – Leisure Walk



DAYTIME

** Significant at 1% level

* Significant at 5% level

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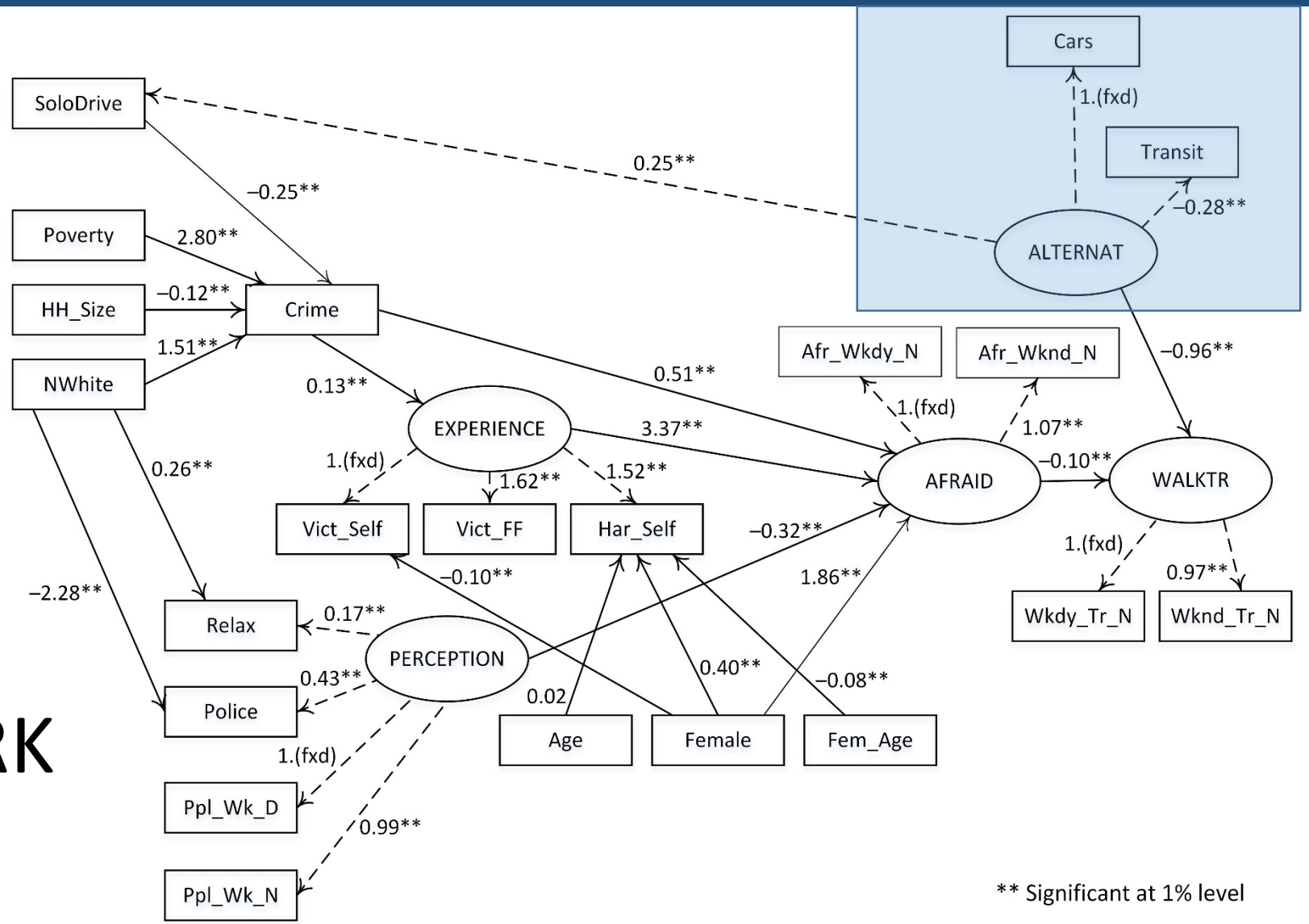
Structural Equation – Transport Walk



AFTER DARK

** Significant at 1% level

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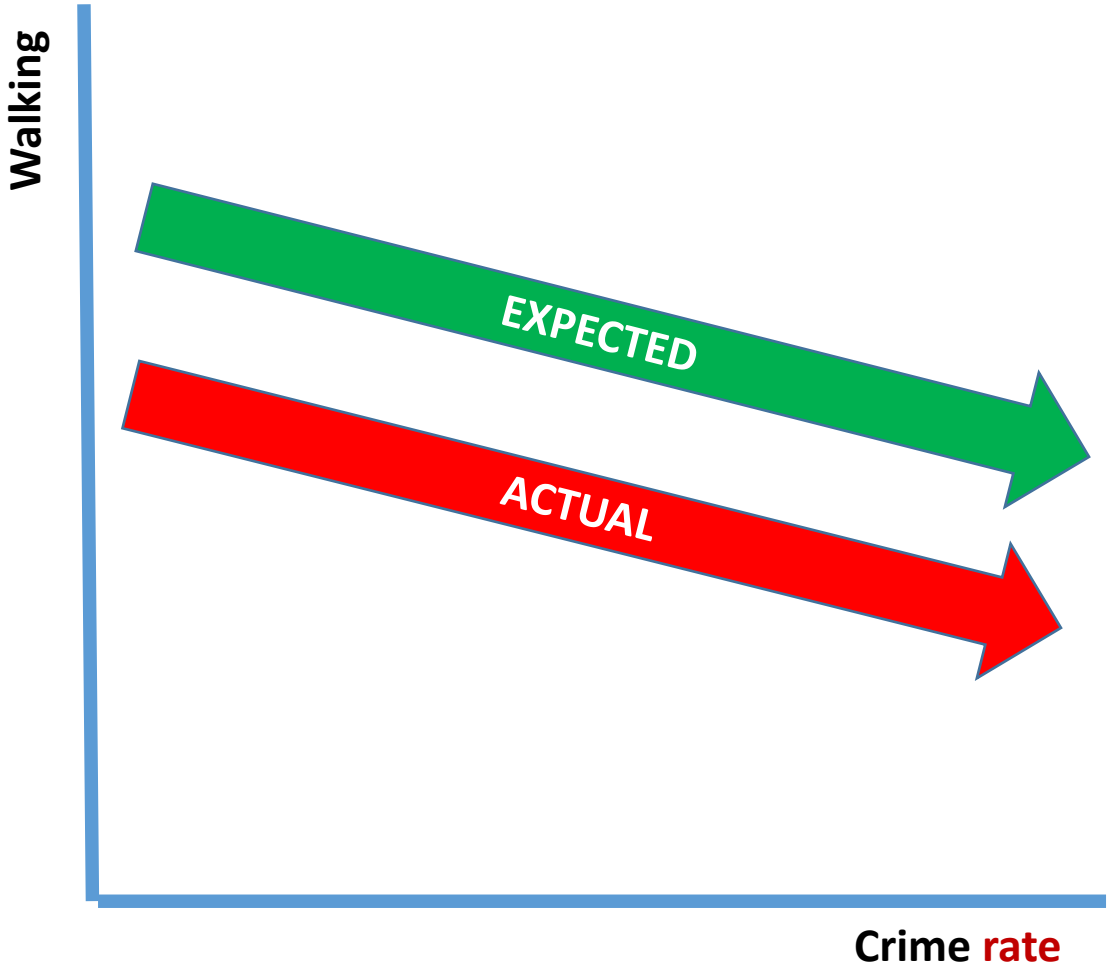
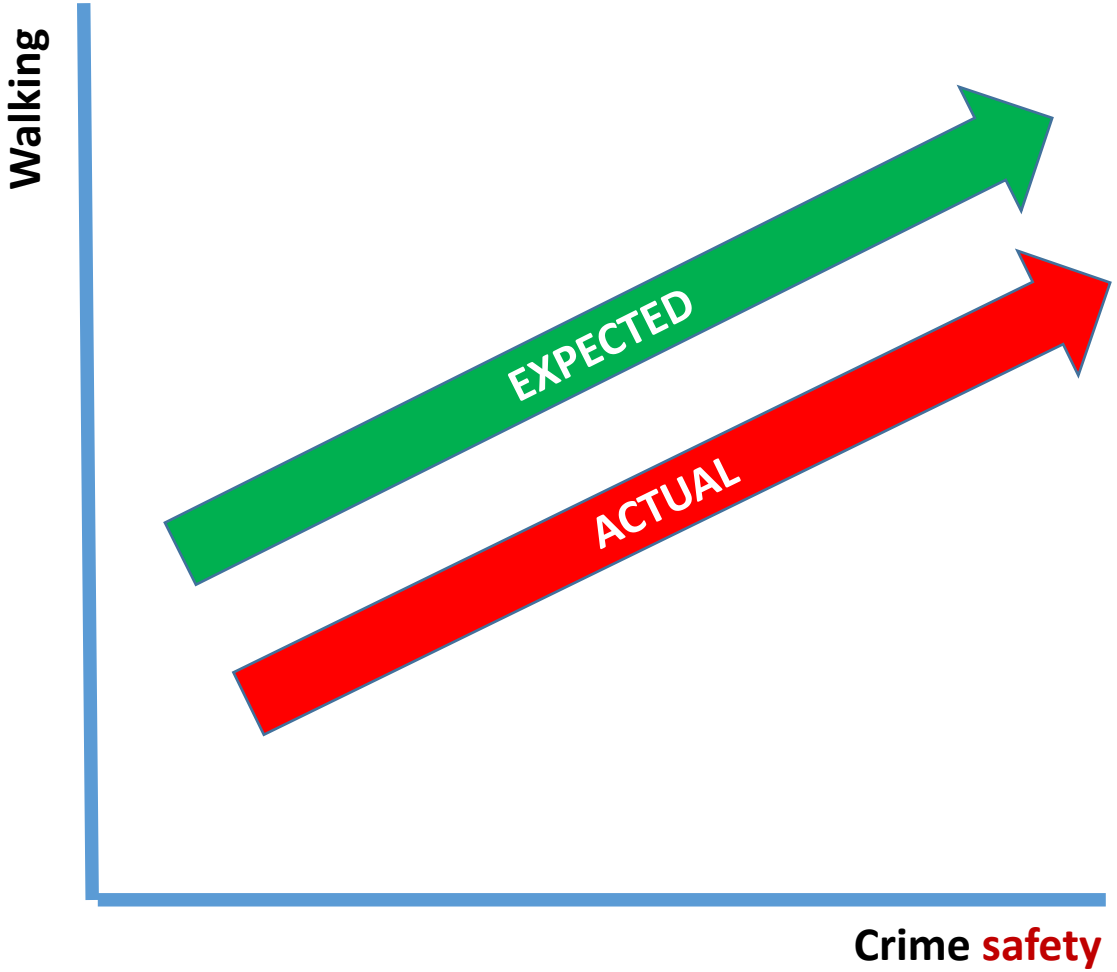
Overall Conclusion





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What will Decrease Fear of Crime?

Improvement	Bloomfield	Newark	Verona	Total
Better lighting	45.8	45.9	38.1	45.1
Increased police presence	15.3	42.1	8.5	33.3
Clean, well-maintained neighborhood with trees and plantings	27.1	49.2	11.0	40.9
Neighborhood watch program	15.3	30.0	3.4	24.4
Community events	25.4	35.0	18.6	31.5
Crackdown on crime	8.5	34.8	1.7	26.2
More people and businesses open on the street	20.3	32.1	15.3	28.0
Security cameras	24.6	39.8	13.6	34.1

Note: Percentages do not add to 100% because multiple strategies could be selected

Additional Sources

UpFront: Streets & Communities

Benefits of Safe Sidewalks

Reducing crime can also improve physical and mental health

By Charles Brown, Deva Deka, Ph.D., James Sinclair, and Susan Blickstein, Ph.D., Alan M. Voorhees Transportation Center, Rutgers University

A large number of studies throughout the developed world have shown that regular walking can promote both physical and mental health. Such benefits can be obtained by walking in any environment—parks, playgrounds, shopping malls, or neighborhood roads. Walking also requires the least in terms of effort, cost, equipment, and facilities. Yet a large proportion of Americans do not walk at all.

People in predominantly low-income and minority neighborhoods are more reluctant to walk than residents of other neighborhoods even though the risks for the diseases that can be reduced by walking are higher in those communities. Research has shown that low-income and minority neighborhoods are often more walkable because of optimal street grids, traffic signals and crosswalks, availability of sidewalks, and proximity to stores and other destinations, but people are still reluctant to walk. Their reluctance to walk in such neighborhoods has prompted some to suggest that people refrain from walking because of high crime.

A large number of studies have been conducted in different countries to understand how crime reduces walking and other outdoor physical activities. However, the results have turned out to be inconclusive or counterintuitive. The analysis in some studies showed that the statistical relationship between crime and walking is positive, meaning that walking is more frequent in neighborhoods where crime rates are higher.

Studying streets

To understand how crime affects walking in New Jersey, a team of researchers from the Alan M. Voorhees Transportation Center (VTC) of Rutgers University recently conducted a study focused on Newark, Bloomfield, and Verona in Essex County. The study included a survey of people living or working in the three municipalities and six focus groups with their residents—two in each municipality.

The survey generated data from 1,173 adults, whereas 26 men and 37 women participated in the focus groups. The survey provided information on fear of crime, walking duration during daytime and nighttime hours, neighborhood perception, and perceptions about potential solutions to crime. The focus groups provided an in-depth understanding of the impact of the participants' experiences and perceptions of crime on their walking behavior and frequency. Both the survey and the focus groups inquired about recreational walking and transportation walking—the latter encompassing trips to places such as stores, workplaces, and transit stops.

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Exploration of the effect of violent crime on recreational and transportation walking by path and structural equation models

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ABSTRACT

To examine how violent crime affects people's recreational and transportation walking duration in daytime and after dark on a typical day, this study undertakes associative and causal analyses with geo-referenced crime data, street-audit data, and data collected through an intercept survey in a three-municipality region of New Jersey that is predominantly inhabited by low-income and minority populations. Survey data was collected from 1173 respondents at 87 intersections selected by stratified random sampling. Similar to many past studies using associative methods, correlation analysis and ordered logit models showed mostly counterintuitive results. However, sequential or causal models, including path and structural equation (SE) models, showed that recorded crime increases fear of crime and chances of victimization, which in turn decrease walking duration for both recreation and transportation. The study concludes that even if people walk more in high-crime areas because of nearby destinations and lack of alternatives, crime may still have an adverse effect on walking, meaning that people in those neighborhoods would have walked even more if not for high crime.

1. Introduction

In view of the proven health benefits of walking and the attribution of crime as a potential reason for people's reluctance to walk in low-income and minority neighborhoods, this study examines the association between police-reported (i.e., recorded) violent crime and daily walking duration for recreation and transportation for a predominantly minority region of New Jersey located about 15 miles west of New York City. The study area consists of three municipalities located in close proximity: City of Newark, Township of Bloomfield, and Township of Verona. Newark is the largest of the three, with a population of approximately 282,000, followed by Bloomfield with 49,000, and Verona with 14,000 residents. The share of nonwhite population in the three municipalities is approximately 74%, 40%, and 9%, respectively. With a violent crime rate of 937 per 100,000 persons, Newark ranks 8th among 491 of New Jersey's 565 municipalities for which recent crime data are available, whereas Bloomfield ranks 141st and Verona ranks 383rd (Federal Bureau of Investigation, 2016). The study is primarily based on a 2017 survey of 1173 respondents from the three municipalities, geocoded crime data from police departments, and street audits.

There is undeniable evidence that walking has many physical health benefits (Lee and Buchner, 2008; Tschentscher et al., 2013; Warburton et al., 2006). According to these studies, walking helps to prevent obesity, diabetes, hypertension, cardiovascular diseases, colon cancer, breast cancer, osteoporosis, and other diseases. Studies have also shown that significant psychological benefits can be achieved by walking in virtually all types of environments (Johansson et al., 2011; Roe and Aspinall, 2011). In addition to providing health benefits to people who walk, walking also provides benefits to society at large in a number of ways. First, by preventing diseases, it reduces healthcare costs (Lee and Buchner, 2008). Second, when people in large numbers walk instead of using motorized modes of transportation, walking reduces air pollution (Pucher and Dijkstra, 2003; Woodcock et al., 2009). Lastly, walking can aid local economics, improve public safety, and enhance social cohesion (U.S. Department of Health and Human Services, 2015). Compared to other forms of physical activity, walking requires no special facilities and little preparation, training, or skill (Lee and Buchner, 2008).

Despite the widespread knowledge about the benefits from walking, many Americans refrain from walking altogether for recreation or transportation. Physical activities such as walking are least common among African Americans, Hispanics, and persons with a low level of education (Eyler et al., 2002; U.S. Department of Health and Human Services, 2015; Vandegrift and Yommer, 2004). According to the

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