



## Pathways to depression: The impact of neighborhood violent crime on inner-city residents in Baltimore, Maryland, USA<sup>☆</sup>

Aaron Curry<sup>b</sup>, Carl Latkin<sup>a</sup>, Melissa Davey-Rothwell<sup>a,\*</sup>

<sup>a</sup> Johns Hopkins Bloomberg School of Public Health, Health, Behaviour & Society, 1629 East Baltimore Street, Baltimore, MD 21201, USA

<sup>b</sup> Surveillance Data Incorporated, Philadelphia, PA, USA

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### ABSTRACT

Crime and neighborhood disorder may negatively impact the health of urban residents. Neighborhoods with high levels of violent crime may also increase residents' risk of experiencing violence. Most studies supporting the assertion that neighborhood disorder impacts mental health have used residents' own ratings of their neighborhoods. The present study examines the relationships among block-group level crime, perceived neighborhood disorder, violence experienced in the neighborhood, and depression. The sample comprising the current and former drug users ( $n = 786$ ) nested in 270 block groups within Baltimore, Maryland, USA. Using path analysis, we tested the hypothesis that neighborhood violent crime has a direct impact on experiences of violence. Also, we hypothesized that neighborhood violence had a direct and indirect impact on depressive symptoms. Results support a model in which violence is associated with psychological distress through perceptions of neighborhood disorder, and through experiences of violence. We conclude that community and structural level interventions are needed to decrease neighborhood crime and improve residents' perception of their neighborhood.

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### Introduction

Depression is a major health problem in itself and has been prospectively linked to cardiovascular disease and other serious morbidities (Glassman & Shapiro, 1998; Jiang, Krishnan, & O'Connor, 2002; MacMahon & Lip, 2002; Maddock & Pariente, 2001). In addition, depression is strongly patterned by socioeconomic status (Inaba et al., 2005; Kessler, 1979; McLeod & Kessler, 1990). Although the majority of studies focusing on correlates, consequences, and causes of depression have largely focused on individual, family, and social network factors, some

researchers have evaluated the role of structural and contextual factors such as neighborhood.

Studies conducted in Canada, the United Kingdom, and the US have examined how neighborhood problems, such as place of residence and exposure to violent crime and vacant housing, might contribute to mental health (Bogat et al., 2005; Dupere & Perkins, 2007; Fauth, Leventhal, & Brooks-Gunn, 2004; Galea et al., 2007; Goldsmith, Holzer, & Manderscheid, 1998; Propper et al., 2005; Ross, 2000). Neighborhood conditions in these studies are usually viewed as chronic stressors, producing psychological distress (Avison & Turner, 1988; Matheson et al., 2006; Steptoe & Feldman, 2001). However, it is still unclear how these chronic stressors operate to produce psychological distress. Do these conditions impact individual perceptions of environment, leading to feelings of fear, anxiety, or hopelessness? Or, do violent neighborhoods impact psychological distress by increasing individual exposure to actual violence?

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\* Corresponding author. Tel.: +1 410 502 5368; fax: +1 410 502 5385.  
E-mail addresses: [aaron\\_curry@yahoo.com](mailto:aaron_curry@yahoo.com) (A. Curry), [clatkin@jhsph.edu](mailto:clatkin@jhsph.edu) (C. Latkin), [mdavey@jhsph.edu](mailto:mdavey@jhsph.edu) (M. Davey-Rothwell).

After screening 8562 studies, [Truong and Ma \(2006\)](#) conducted a systematic review of 29 studies that examined the relationship between neighborhood factors and mental health. The authors included studies that assessed neighborhood factors through objective measures as well as subjective measures. Objective measures refer to empirical data collected at the group level, rather than from an individual, such as number of dwellings, unemployment rates, crime rates, and income levels. Subjective measures refer to self-reported data collected from individuals which assess perceptions, attitudes, and personal experiences within the neighborhood. The authors concluded that there was a consistent positive relationship between neighborhood characteristics and mental health. However, this association tended to be modest, especially after adjusting for individual-level factors. This review indicates that both subjective and objective measures of neighborhood factors are associated with mental health.

Researchers have demonstrated a consistent link between self-reported perceptions of one's neighborhood, a subjective measure, and physical and mental health. In a sample of Caucasians and African Americans living in Baltimore, MD, [Gary, Stark, and LaVeist \(2007\)](#) found that individuals who perceived that their neighborhood had more severe problems (e.g. physical, social, and criminal problems) were more likely to experience higher levels of stress and depression. Similarly, [Latkin and Curry \(2003\)](#) found that baseline perceptions of one's neighborhood problems predicted higher rates of depression at a follow-up assessment in Baltimore, MD.

In an Australian sample, [Ziersch, Baum, Macdougall, and Putland \(2005\)](#) evaluated the impact of a variety of perceived neighborhood characteristics including perceived safety, perception of the physical environment, neighborhood trust, neighborhood connections, and social capital on physical and mental health. These researchers found that perceived neighborhood safety was associated with physical health. In addition, mental health was related to perceived safety and neighborhood connections.

There is a growing body of literature assessing the impact of objective measures of neighborhood on health status. Research conducted among 4.5 million Swedes has shown associations between neighborhood level factors, including proportion of residents with low income and low social capital, and mental health hospitalizations and disorders ([Lofors & Sundquist, 2007](#); [Sundquist & Ahlen, 2006](#)). Likewise, [Silver, Mulvey, and Swanson \(2002\)](#) reported that neighborhood disadvantage and mobility were associated with higher rates of depression and substance abuse in a large community sample of U.S. residents.

Many researchers have posited that objective measures of neighborhood influence physical and mental health through mediating variables such as perceptions of one's neighborhood. [Cutrona, Wallace, and Wesner \(2006\)](#) proposed three mechanisms by which neighborhood characteristics affect individual depression levels. These pathways include (1) level of daily stress imposed by lack of resources, physical stressors, and other people; (2) heightened vulnerability to experiencing negative events; and (3) disruption of social networks.

Through multi-level analyses, [Matheson et al. \(2006\)](#) studied the role of neighborhood stress, operationalized as residential mobility and material deprivation, on depression among Canadian residents. They found that after controlling for individual characteristics, there was a significant association between neighborhood stress and depression. In a study conducted in Michigan US, [Kruger, Reischl, and Gee \(2007\)](#) found that the relationship between physical deterioration of neighborhood and depression was mediated by social contact with neighbors, social capital, and perceptions of crime.

[Wen, Hawkey, and Cacioppo \(2006\)](#) evaluated the relationships between objective and perceived neighborhood characteristics, psychosocial variables, and self-rated health in a sample of older adults in Illinois. They utilized neighborhood census data to construct an objective measure of neighborhood SES. Subjective assessment of neighborhood was measured as perceptions of physical, social, and service environment. Through a series of regression models, their findings indicated that objective measures of neighborhood affected self-reported health through perceptions of neighborhood and psychosocial factors including stress and depression.

Using structural equation modeling, [Stiffman, Hadley-Ives, Elze, Johnson, and Dore \(1999\)](#) examined the pathways between objective neighborhood conditions, perceived neighborhood conditions, environmental support, and mental health outcomes among adolescents living in inner-city areas of St. Louis. Although they found no direct impact of neighborhood conditions on mental health, they did find an indirect pathway through individual perceptions of neighborhood conditions.

Our previous research tested and confirmed a direct association between perceptions of neighborhood disorder and depression using the same SHIELD dataset that is reported on here ([Latkin & Curry, 2003](#)). Although the present study also considers the role of neighborhood perceptions on distress, we have expanded our model to assess the impact of an objective neighborhood measure (i.e., police crime report) and personal experiences of violence. The present study prospectively examined the pathways between an objective measure of neighborhood violence and depressive symptoms in a population of adults living in an inner-city environment. Unlike [Stiffman et al. \(1999\)](#) and [Wen et al. \(2006\)](#), who used census variables at a census tract level of aggregation, our measure of objective neighborhood conditions comprising police crime records, aggregated to a block-group level. Research on violence in Baltimore has shown that the block group is an appropriate level of aggregation due to clustering of violent events and stressors ([Harries, 1997](#)).

While there is often a high degree of correlation between census variables such as median household income, and rates of violent crime, violent crime may be more proximal in the causal pathway that leads from neighborhood factors to mental health outcomes. Our choice of block groups versus census tracts was motivated by previous research that found that perceptions of neighborhood disorder, aggregated to a block-group level, were a more reliable measure than perceptions of neighborhood disorder aggregated to a census tract level ([Curry, 2004](#)). In the

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