Effects of neighborhood violence and perceptions of neighborhood safety on depressive symptoms of older adults

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A B S T R A C T

Violent crime within a neighborhood as well as perceptions of neighborhood safety may impact the depressive symptoms experienced by community-dwelling older people. Most studies examining the influences of neighborhood characteristics on mental health have included either objective indicators or subjective perceptions and most operationalize neighborhood as a function of socioeconomic status. This study examines the effects that objectively assessed neighborhood violent crime and subjective perceptions of neighborhood safety in tandem have on depressive symptoms. The sample identified using random-digit-dialing procedures included 5688 persons aged 50–74 living in New Jersey (USA). Using multilevel structural equation analyses, we tested the hypothesis that higher levels of neighborhood violent crime and poorer perceptions of neighborhood safety are associated with higher levels of depressive symptoms, controlling for age, sex, and household income. Results supported the hypotheses. We conclude that interventions at the neighborhood level that reduce violent crime may be needed to compliment efforts at the individual level in order to reduce the depressive symptoms experienced by older people.

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Introduction

Estimates of the prevalence of elevated depressive symptoms among community-dwelling older people range from 9.9% to 40.3% (Henderson & Pollard, 1992; Saks, Tut, Kaarik, & Jaanson, 2002; Stallones, Marx, & Garrity, 1990). These symptoms significantly increase the risk that an individual will develop clinically diagnosable depression. Moreover, the health care costs of people with sub-threshold depressive symptoms and those with DSM-IV depressive disorders are comparable (Katon, Lin, Russo, & Unutzer, 2003). As such, understanding the predictors of depressive symptoms in older people is critical to identifying intervention strategies that could alleviate the pain and suffering of thousands of older adults.

Although the overwhelming majority of studies seeking to identify predictors of depressive symptoms have focused on individual characteristics, recently scientists have turned their attention to understanding the role that context, most often defined as the neighborhood in which a person lives, plays in understanding depressive symptoms. These studies have generated a plethora of findings linking neighborhood attributes and depressive symptoms in a variety of community-dwelling populations (Curry, Latkin, & Davey-Rothwell, 2008; Gary, Stark, & LaVeist, 2007; Haines, Beggs, & Hurlbert, 2011; Kim, 2008; Mair, Diez Roux, & Galea, 2008; Mair et al., 2010; Ross & Mirowsky, 2009). There is also evidence of clustering of depressive symptoms in geographic space in conjunction with spatially identifiable associations of neighborhood socioeconomic status, crime and depressive symptoms (Cromley, Wilson-Genderson, & Pruchno, 2012). Following a comprehensive review, Mair et al. (2008) concluded that there was strong support for an association between neighborhood characteristics and depressive symptoms, even after controlling for age, sex, marital status, race, education, and income.

Interest in understanding the mechanisms by which neighborhoods influence depressive symptoms has been spurred both by theoretical work regarding the ecologic determinants of health and by methodological advances including multilevel analyses, multilevel structural equation analyses, and spatial analysis. One of the limiting factors characterizing this literature has been the dominant trend of defining neighborhoods according to the socioeconomic status of its residents. The influence of neighborhood is likely to be particularly salient for older people, as after retirement

people are most likely to spend more of their day in their neighborhood (Robert & Li, 2001), they are most likely to have longevity in the neighborhoods in which they live (Robert & Li, 2001), they are less mobile (Yen, Michael, & Purdue, 2009), and, as individual capability declines there is evidence that characteristics of the environment assume greater salience (Lawton & Nahemow, 1973).

The analyses that follow add unique information to this literature as they examine the ways in which both objective and subjective neighborhood characteristics influence depressive symptoms in a large sample of community-dwelling older people utilizing modern analytic techniques incorporating both structural components and appropriate statistical controls to address nesting of individuals within geographies into the model. Focusing on objective indicators of violent crime and perceptions of neighborhood safety, our analyses move attention beyond the black box of socioeconomic status, identifying more specifically which aspects of neighborhood are responsible for observed patterns.

Objective and subjective neighborhood characteristics

While a host of neighborhood characteristics have been examined in relationship to health outcomes, Weden, Carpiano, and Robert (2008) suggested that aspects of neighborhood can be categorized as either objective or subjective. Objective indicators are area-level measures that are independent of an individual's own perception. They include information derived from administrative databases, researcher observations, as well as counts of or proximity to places such as parks, bars, or hospitals. Subjective neighborhood measures are individual-level assessments of the neighborhood in which a person lives and include domains such as safety, social cohesion, and access to services.

The majority of studies examining the relationship of neighborhood characteristics and depressive symptoms have measured neighborhood using either objective (Aneshensel et al., 2007; Galea et al., 2007; Hybels et al., 2006; Kubzansky et al., 2005; Latkin & Curry, 2003; Ostir, Eschbach, Markides, & Goodwin, 2003; Ross, 2000; Walters et al., 2004) or subjective indicators (Gary et al., 2007; Ross & Mirowsky, 2009; Schieman & Meersman, 2004; Yen, Yelin, Katz, Eisner, & Blanc, 2006), while only a handful of studies included both objective and subjective measures of neighborhood (Curry et al., 2008; Haines et al., 2011; Kruger, Reischl, & Gee, 2007; Mair et al., 2010). Literature regarding the relationships of neighborhood characteristics and physical health has followed a similar trend, with only few studies including both objective and subjective measures of neighborhood (Bowling & Stafford, 2007; Shareck & Ellaway, 2011; Parra et al., 2010; Weden et al., 2008; Wen, Carpiano, & Robert, 2006).

Conceptual framework: objective and subjective neighborhood characteristics and depressive symptoms

Stress plays a central role in theories about the relationship between neighborhood characteristics and depressive symptoms. Features of neighborhoods with the potential to create stress for its occupants include lack of resources, disorder, violence, inadequate housing, and lack of green spaces, yet the mechanisms underlying the relationship between neighborhood characteristics and depressive symptoms remain unclear.

Cutrona, Wallace, and Wesner (2006) suggested three ways by which neighborhood characteristics may influence stress. First, the level of daily stress a neighborhood imposes on its residents varies as a function of both its physical characteristics (e.g., traffic, bars, and parks) and its residents (e.g., social disorder, poverty). Second, neighborhood characteristics may influence people's vulnerability to depressive symptoms, as there is evidence that the same event is more likely to trigger depressive symptoms in a low SES neighborhood than in a high SES neighborhood (Elliott, 2000). Third, neighborhood characteristics can influence the extent to which supportive bonds exist among people, which in turn may affect depressive symptoms (Sampson, Morenoff, & Gannon-Rowley, 2002).

There is evidence that objective characteristics of neighborhoods, including poverty, (Galea et al., 2007; Kubzansky et al., 2005; Ostir et al., 2003) and residential stability (Aneshensel et al., 2007; Matheson et al., 2006) are associated with depressive symptoms. Similarly, subjective perceptions of neighborhood disorder are related to anger, depression, anxiety, and lower quality of life (Gary et al., 2007; Latkin & Curry, 2003; Ross & Mirowsky, 2009; Schieman & Meersman, 2004; Yen et al., 2006; Ziersch, Baum, MacDougall, & Putland, 2005).

The few studies to include both objective neighborhood characteristics and subjective perceptions suggest that individual perceptions mediate the association between objective neighborhood characteristics and depressive symptoms, but both failure to control for nesting of people within geographic space (Curry et al., 2008; Kruger et al., 2007) and an almost exclusive focus on neighborhood socioeconomic status (Haines et al., 2011; Ross, 2000) limit understanding of the ways in which neighborhood characteristics influence depressive symptoms. As associations between socioeconomic status indicators of neighborhoods and other contextual neighborhood characteristics, such as violence, and the presence or absence of various amenities are collinear (Leal, Bean, Thomas, & Chaix, 2012), in order to advance knowledge about how neighborhoods have a bearing on depressive symptoms, it is important to identify conceptually what it is about neighborhoods that influences health.

A small body of evidence suggests that neighborhood disorder has more powerful explanatory effects (Aneshensel & Sucoff, 1996; Hill, Ross, & Angel, 2005; Latkin & Curry, 2003; Ross & Mirowsky, 2001; Steptoe & Feldman, 2001) than indicators of socioeconomic disadvantage. Cutrona, Russell, Hessling, Brown, and Murry (2000), for example, found that although neighborhood economic disadvantage was not significantly correlated with distress, community social disorder was significantly related to depression, even after controlling for a wide range of individual-level demographic and psychosocial characteristics. Similarly, Hill et al. (2005), Steptoe and Feldman (2001) and Ross and Mirowsky (2009) found that neighborhood disorder was associated with depressive symptoms, although in these studies neighborhood disorder was assessed with respondent perceptions rather than with objective indicators.

Consistent with this work, we posit that the level of violent crime in a neighborhood is central for understanding the association between neighborhoods and depressive symptoms. Moreover, consistent with Curry et al. (2008), we suggest the importance of examining objective indicators of crime and subjective perceptions of neighborhood safety as predictors of depressive symptoms. Although there is evidence that the effects of socioeconomic indicators of neighborhoods are mediated by subjective perceptions, consistent with research examining the effects of neighborhood violence (Parra et al., 2010; Shareck & Ellaway, 2011), we posit that objective levels of neighborhood violence will have effects on depressive symptoms that are independent of individual perceptions.

Hypotheses

As depicted in Fig. 1, our conceptual model focuses on the way in which an objective measure of the neighborhood (violent crime) (lower panel) and a subjective measure of the neighborhood (perceived safety) (upper panel) relate to depressive symptoms