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Article

Vigilance at home: Longitudinal analyses of neighborhood safety perceptions and health ☆

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ABSTRACT

Feeling unsafe in one's neighborhood is associated with poor health. This relation may be conferred through multiple pathways, including greater psychological distress and health behaviors that are associated with poorer health and perceptions of neighborhood safety. Women and older adults often report feeling less safe in their environments despite having a lower risk of victimization than men and younger adults, and it is unclear whether these differences influence the health-perception relationship. We used the Midlife in the United States study to test whether baseline neighborhood safety perceptions would be associated with chronic health conditions 10 years later, and whether this relation differs by gender, age, and individual and neighborhood SES. Chronic health conditions included items such as respiratory problems, cancer, autoimmune disorders, digestive problems, pain, infections, cardiovascular conditions, sleep problems, and depression and anxiety. Results indicated that people who perceived lower neighborhood safety had more health problems 10 years later than those perceiving more neighborhood safety. These findings persisted after adjusting for baseline health, neighborhood income, individual income, and individual sociodemographics. This relation was partially mediated by smoking. Results did not differ by gender, age, or individual SES. Our results indicate a longitudinal relation between feeling unsafe in one's neighborhood and later health problems among men and women representing a wide age and income range. Moreover, our findings support a behavioral pathway through which neighborhood safety perceptions may be linked to health.

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1. Introduction

Examining health in the context of residential neighborhoods is not a new endeavor. Recently, however, researchers have been interested in how residents' appraisals of their neighborhoods are associated with their health. Cross-sectional studies have demonstrated that neighborhood safety perceptions (NSP) are associated with various aspects of health, including elderly mobility disability, self-rated health, and psychological distress (Clark et al., 2009; Hale et al., 2013; Meyer, Castro-Schilo, & Aguilar-Gaxiola, 2014). Furthermore, these perceptions partially explain the long-standing relation between socioeconomic status (SES) and physical and mental health (Kim, 2010; Ross & Mirowsky, 2001). Researchers are also focusing on mechanisms, such as health behaviors and stress (Burdette & Hill, 2008; Hale et al., 2013), to explain these connections as this information may inform neighborhood-level health interventions.

Despite these advances to the field of neighborhoods and health research, cross-sectional designs and lack of explanatory factors restrict our current understanding of why NSPs relate to physical health outcomes. Moreover, although researchers have identified differences between men and women and by age in reports of NSPs, it is unclear how the relation between these perceptions and health may vary by gender and age. In the present study, we tested three hypotheses. First, using the longitudinal Midlife in the United States study, we tested the hypothesis that NSPs would be related to health 10 years later even after adjusting for baseline health status and various neighborhood- and individual-level sociodemographic characteristics. Second, we investigated whether this relation varies between men and women,

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by age, and among individuals with differing SES. Third, we examined affective and behavioral pathways that may partially explain this hypothesized link.

1.1. Neighborhood safety perceptions and health

Lower NSPs are significantly associated with worse self-rated health and more symptoms of psychological distress (Hale et al., 2013; Kim, 2010; Meyer et al., 2014; Ross & Mirowsky, 2001), and also partially account for relations between lower individual and neighborhood SES and poorer physical and mental health outcomes (Kim, 2010; Meyer et al., 2014). These studies highlight the importance of NSPs for physical and mental health, but studies have investigated these associations with samples from single states (California, Wisconsin, and Illinois, respectively), potentially limiting generalizability across regional boundaries. Each of these investigations also utilized cross-sectional designs, which limit our knowledge of whether NSPs can prospectively predict future health conditions.

One longitudinal study of older adults whose income was below the poverty line found that lower NSPs were associated with increased mobility disability (Clark et al., 2009). This study represents an improvement over previous cross-sectional designs, yet the findings were limited to residents in Connecticut. Whether this finding generalizes to individuals residing in communities around the nation who vary in age and income is one of the foci of the present study. Another study examined the relation between NSPs and activities of daily living (ADLs, e.g., eating, dressing) among a national sample of older adults (Sun, Cenzer, Kao, Ahalt, & Williams, 2012); older adults with lower NSPs experienced greater declines in the ability to carry out ADLs over a ten-year period than those with higher NSPs. To date, however, there is a dearth of investigations which examine *how* NSPs relate to these aspects of health, and whether individual attributes modulate these relations. The present study examined whether the relation between NSPs and health differs between men and women, by age, and among those with varying levels of SES.

1.2. Neighborhood safety perceptions and health: moderators

Fear of crime varies systematically between men and women and by age (for reviews see Smith & Torstensson, 1997; Snedker, 2015). Women and older adults typically report higher levels of fear than men or younger adults despite having a lower likelihood of being the target of physical violence. One hypothesis for this discrepancy is that women and older adults are more vulnerable to physical violence. This argument has been interpreted both in that women and older adults perceive themselves as relatively less able to flee from such an assault, and that they react more fearfully to perceived risk of violence. An alternative hypothesis for the discrepancy between fear reports and likelihood of victimization is that men more often than women downplay, or neutralize, their fear of crime (Smith & Torstensson, 1997).

Despite a substantial literature documenting demographic differences in reports of fear, there is a paucity of work examining how the relation between NSPs and health may vary by gender or age. On the one hand, perceptions of safety may relate more strongly to health among individuals who perceive themselves as more vulnerable to threats (i.e., women or older adults). On the other hand, it is possible that fear of crime is a stronger predictor of health among those most likely to be the targets of crime. In the present study, we tested this question by examining whether the relation between NSPs and health conditions 10 years later would differ between men and women or by age. Additionally, given that others (Clark et al., 2009) have found that NSPs only relate to mobility disability among older adults living in poverty (and not those above the poverty line), we also examined whether the relation between NSPs and health varies as a function of SES.

1.3. Neighborhood safety perceptions and health: pathways

One study found that NSPs not only related to health through psychological distress, but also through self-reported physiological arousal (difficulty breathing, numbness, and sweating not related to exercise) and engagement in poor health behaviors (e.g., diet and exercise; Burdette & Hill, 2008). This study provided an important contribution indicating that NSPs may relate to health through multiple affective, physiological, and behavioral pathways. However, the analysis was limited to a cross-sectional analysis of data from a single geographic region (Texas). Like many other examinations of NSPs, generalizability of these previous findings is therefore restricted. The present study will build on these findings by examining a potential longitudinal relation between NSPs and health and potential affective and behavioral pathways using a large national sample of young to older adults.

1.4. The present study

Similar to others (Clark et al., 2009), we hypothesized that lower NSPs at a baseline period would predict a greater number of self-reported physical and mental health conditions ten later. We also examined whether this potential relation would persist across the full range of individual SES, neighborhood SES, age and both genders. Additionally, we predicted that affective and behavioral pathways would partially explain this hypothesized link. To examine an affective pathway, we predicted that depressive symptoms would partially explain links between baseline NSPs and later health. To examine behavioral pathways, we predicted that excessive alcohol consumption, sleeping troubles, smoking, and physical activity would partially account for the correlation between NSPs and health. In all of our statistical models, we adjusted for baseline health status and several individual sociodemographic characteristics related to health, NSPs, or both.

2. Method

2.1. Sample and procedures

The Midlife in the United States (MIDUS) longitudinal study assesses behavioral, psychological, and social factors that may explain variations in mental and physical well-being across the life course. Participation involved the completion of a telephone interview and self-administered questionnaire. The first wave of data collection took place in 1994, and follow-ups have been conducted every ten years thereafter. We include participants who completed Waves II (2004) and III (2014) in the present study. Most MIDUS participants were sampled via random digit dialing procedures, with siblings or twins of these participants representing the remainder of the sample. The study was completed using ethical guidelines with the approval of each of review boards of the institutions involved.

2.2. Measures

2.2.1. Chronic health conditions

In MIDUS II, participants reported whether or not (1=yes, 0=no) in the past 12 months they had experienced or been treated for any chronic physical and mental health conditions. Physical health conditions included items such as respiratory problems (e.g., asthma), cancer, autoimmune disorders (e.g., arthritis, lupus), pain (e.g., sciatica, migrane headaches), skin trouble

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