Linking profiles of neighborhood elements to health and related outcomes among children across the United States

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ABSTRACT

The current study explored association of neighborhood elements to children's health and related outcomes. Nationally representative data (N = 49,513,974, ages 6-17, 51.1% Male) was used to empirically define classes of neighborhoods based on presence or absence of various neighborhood elements. Analyses resulted in a three-class model: 1) "High Assets, Low Disorganization" (64.57%), 2) "High Assets, High Disorganization" (13.51%), and 3) "Few Assets, Low Disorganization" (21.91%). Class Membership was differentially associated with health, flourishing, and neighborhood cohesion. Results suggest health interventions should focus on increasing neighborhood assets, decreasing levels of neighborhood violence and poverty, and improving social dynamics of neighborhoods.

1. Introduction

Over the last 20 years, there has been increased evidence that neighborhood characteristics play an important role in the health and well-being of children, including existing health disparities (Alegria et al., 2015; Diez Roux and Mair, 2010; Minh et al., 2017). Scholars have proposed a number of theoretical models to explain neighborhood effects on individual development. These models are based on both social and physical characteristics of neighborhoods, as well as level of neighborhood urbanization (Chitewere et al., 2017). Additionally, community violence and poverty are often studied in relation to neighborhoods and health.

The Integrative Model for the Study of Developmental Competencies in Minority Children, developed by García Coll and colleagues, emphasizes that neighborhoods (along with places such as schools and health care settings) can be promotive and/or inhibitive of children's developmental competencies, including cognitive, social, emotional, and linguistic skills, as well as skills such as navigating two or more cultures and coping with racism and discrimination (García Coll et al., 1996). According to García Coll's model, the ability of a place to promote or inhibit competency development depends on both "external" resources, such as better housing, as well as congruence of the environment to the child's worldview. In other words, do neighborhood expectations, goals, and values align with those of a child and their family? For example, a primarily White middle-class neighborhood may

have a number of resources (library, recreation center, etc.) that promote developmental competencies for ethnic minority children, but their development may also be inhibited by experiences of discrimination or feeling like they do not belong.

Many other existing theories on neighborhoods and development focus on social elements similar to García Coll's model; for example, neighborhood cohesion, which refers to the presence of a trusting network of relationships and support in one's neighborhood. Neighborhood cohesion encompasses characteristics such as social norms, structure, monitoring, routine, and the behavior of neighbors and peers, and has been linked to greater physical activity, lower obesity risk, and better mental health (Singh and Ghandour, 2012).

In contrast to neighborhood cohesion, neighborhood disorganization is defined as the failure of a community structure to recognize the values and sustain efficient social orders of those who reside in the community (Sampson and Groves, 1989). The concept of neighborhood disorganization stems from Social Disorganization Theory (Sampson and Groves, 1989) and is informed by seminal research from Shaw and McKay (1942) highlighting the role of structural factors (e.g., socioeconomic status, ethnic heterogeneity, and residential mobility) and community social organization in the occurrence of crime and delinquency. Neighborhood disorganization and related neighborhood characteristics, such as instability, have been associated with increased alcohol and drug use (Lambert et al., 2004; Winstanley et al., 2008), reduced levels of generalized trust (Intravia et al., 2016), and

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behavioral/emotional outcomes among youth (Leventhal and Brooks-Gunn, 2000).

Past researchers have assessed neighborhood disorganization through the presence or absence of certain physical elements in neighborhoods, including indicators of disorder such as litter and vandalism, as well as amenities like parks and libraries. These studies have resulted in a large, global body of work suggesting associations between the presence of amenities and good health, and the presence of elements of disorder and worse health. For example, Singh and Ghandour (2012) found that youth residing in disadvantaged neighborhoods, characterized by safety concerns, poor housing, garbage/litter, and vandalism, were more likely to have behavioral problems. Another large scale study of 5280 people residing in Denmark determined that neighborhood disorder (including levels of vandalism, theft, alcohol abuse, and street garbage) and pollution were associated with higher allostatic load, particularly for women (Van Deurzen et al., 2016). A study of 13,899 adults in the United Kingdom linked indicators of poorer physical quality of residential neighborhoods (including missing waste collections, public sector housing vacancy rate, and amount of vacant and derelict land) to worse self-rated health, while adjusting for age, sex, social class, and economic activity (Cummins et al., 2005). Finally, in Perth, Australia, Giles-Corti et al. (2003) found that people residing in neighborhoods with limited access to sidewalks and recreational facilities were more likely to be overweight or obese, conditions largely associated with chronic disease and disability.

Another way in which researchers have studied the impact of neighborhood on health is by examining differences across rural versus urban settings. Research has found that both rural and urban settings have various advantages and disadvantages for health, depending on the outcome under study (Anderson et al., 2015). For example, when comparing urban to suburban and rural youth, urban youth were found to report higher rates of negative neighborhood peer behavior, neighborhood threats, and school crime/violence (Bowen and Bowen, 1999) all of which negatively impact adolescent well-being. Alternatively, Thorne and colleagues found no significant differences in mental health symptoms (e.g., depression, posttraumatic stress, or suicide risk) among adolescents from rural compared to non-rural backgrounds (Thorne et al., 2017). Mixed results have also been reported when scholars treat community context as a moderator. For example, Thorne et al. (2017) noted that rural origin was a moderator for the relationship between posttraumatic stress symptoms and suicidal risk in their study. Conversely, other researchers have found that community context (rural compared to non-rural) failed to demonstrate moderating effects between known risk factors and outcomes such as delinquency and violence (Vazsonyi et al., 2008).

In addition to the proposed theoretical models, a major focus of the literature on neighborhood characteristics and youth outcomes has been on exposure to community violence. Such violence can include robberies, gang activity, fights, or murder. More than half of the children and adolescents in the United States who reside in urban communities have been exposed to violence in their neighborhoods (Stein et al., 2003), and research has found that such exposure is associated with posttraumatic stress symptoms, as well as externalizing and internalizing behaviors (Fowler et al., 2009). According to Fowler et al. (2009), youth living in violent communities may have their sense of safety threatened due to a constant feeling that they or their families are at-risk of victimization in their neighborhood. In turn, this leads to hyperarousal and negative mental health outcomes (Fowler et al., 2009). Even hearing about a violent event can cause children to remain hypervigilant of their surroundings and ultimately, lead to symptoms of posttraumatic stress (Schell et al., 2004). Adolescents with repeated exposure to violence may also act out aggressively and imitate the behaviors seen in their neighborhood, possibly continuing the cycle of violence within their community (Guerra et al., 2003).

Like exposure to community violence, poverty is known to play a significant role in children's mental health outcomes (Najman et al., 2010). Research findings report that children in low-income families are more likely to experience a number of psychosocial stressors and worse developmental health, including a lack of instrumental support provided by their parents, higher levels of chaos and conflict in the home, and less attention paid to their emotional well-being (Evans and Kim, 2013; Minh et al., 2017). Additionally, children in impoverished neighborhoods often have higher exposure to a number of environmental stressors, including increased crime and violence, pollution, and street traffic (Evans, 2004). The accumulation of less responsive parenting and financial strain combined with neighborhood risk factors has been found to negatively impact a child's psychological well-being, with symptoms of depression, anxiety, aggression, diminished self-regulatory ability, and elevated internalized (i.e., avoidance) and externalized behaviors (i.e., aggression) being reported (Evans and English, 2002; Evans and Kim, 2013; Najman et al., 2010). Additionally, findings from a longitudinal study of 2609 children reported that family poverty was a significant predictor of anxiety and depression. Specifically, the frequency of exposure to poverty was associated with poorer mental health outcomes when these children entered adolescence and young adulthood (Najman et al., 2010).

1.1. Current study

In sum, much of the work on neighborhoods and health has focused on high poverty and/or high crime neighborhoods, finding strong links between these factors and later poor mental and physical health, as well as health disparities (Diez Roux and Mair, 2010; Leventhal and Brooks-Gunn, 2000; Minh et al., 2017). A separate strain of research has focused on context (rural, suburban, or urban) and features of the neighborhood physical environment (i.e., land use, air pollution, access to resources; Diez Roux and Mair, 2010), with mixed results. Furthermore, although neighborhood cohesion has been linked to better health, limited research has examined how the built environment influences this construct (French et al., 2013). Finally, while much research has examined access to physical elements of neighborhoods in relation to health, few studies have looked at how various positive and negative neighborhood physical elements tend to be distributed across geographical areas. For example, are some areas characterized by only negative elements, and others by only positive elements? Are there certain negative or positive elements that tend to occur together, such as litter and graffiti, but not others, such as sidewalks and recreation centers?

There is a need for further research that examines: 1) typical neighborhood profiles in terms of access to certain positive and negative physical elements, and 2) how these profiles, in conjunction with levels of crime and poverty, influence the well-being of neighborhood residents, particularly children. In the current study, we address these areas of enquiry through identifying distinct patterns, or classes, of neighborhood elements that exist in communities across the country using a large, nationally representative sample of youth. Additionally, we explore the relation of these classes to three well-being indicators while accounting for age, living in a metro area, income level, and exposure to neighborhood violence. The well-being indicators assessed include child health, child flourishing (i.e., children's well-being related to engagement in life, emotional balance, and self-efficacy), and neighborhood cohesion.

2. Methods

2.1. Data

The current study was completed with data from the 2011–2012 National Survey of Children's Health (NSCH) (Child and Adolescent Health Measurement Initiative, 2012), which assessed physical and emotional health of children, as well as factors that might relate to their