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## Early community influence on young adult physical health: Race/ethnicity and gender differences

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## ABSTRACT

The purpose of this study was to examine the implications of childhood community contexts in the U.S. for physical health problems related to impaired metabolic conditions, and coronary/cardiovascular diseases during young adulthood. Data came from Waves 1 and 4 (1995 and 2008) of the National Longitudinal Study of Adolescent Health ( $N = 11,845$ ). Multilevel logistic-normal regression was used to examine the relative risk or odds ratios of physical health problems in young adulthood (2008), based on both 1990 census level and 1995 survey data. Childhood community disadvantage and minority concentration increased the risk of young adult obesity, hypertension, diabetes, and high cholesterol. However, the influence of both community disadvantage and minority concentration on young adult physical health outcomes differed by race/ethnicity. Our findings clearly point to the increased risk of physical health problems related to coronary and cardiovascular diseases when a child is raised in an adverse and minority concentrated community. This influence of the community was pervasive and independent of family characteristics. Programs should combat adverse community conditions and enhance resiliencies of youth and families living in such communities.

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### 1. Introduction

The prevalence of obesity, diabetes, hypertension, and cholesterol abnormalities among young adults is 32%, 5%, 3%, and 10%, respectively (Bell, Mayer-Davis, Beyer, D'Agostino, & Lawrence, 2009; Centers for Disease Control, 2008; Duncan, Li, & Zhou, 2004; Hansen, Gunn, & Kaelber, 2007). These health conditions are significant risk factors for coronary and cardiovascular disease – the number one cause of adult death in the U.S. (Malik et al., 2004). A growing number of studies indicate these health problems

may develop during childhood or adolescence and continue into adulthood (Kitai, Vinker, Halperin, Meidan, & Grossman, 2007; Roux, Jacobs, & Kiefe, 2002; Wickrama & Bryant, 2003). In addition, several studies have demonstrated the tendency for these health problems to co-occur (Bell et al., 2009). For example, the presence of obesity dysregulates the body and lowers the metabolic rate thus leading to a perpetuation of obesity and other metabolic diseases (Eckel, Grundy, & Zimmet, 2005; Girod & Brotman, 2003).

Previous community studies have shown that the early onset of such health problems is associated with community contexts in which children grow up (Wheaton & Clarke, 2003). These studies suggest that childhood community contexts persistently influence later health outcomes over the life course through social, behavioral, and psychological mechanisms, as well as through structural constraints (Entwisle, 2007). These mechanisms

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can be direct exposure-dependent or path-dependent processes over the life course. Consistent exposure to structural community adversity contributes to adverse health outcomes cumulatively – an exposure-dependent mechanism. In addition, community adversity exerts a persistent influence through a sequence of adverse social, behavioral, and psychological experiences ('chain of insults') that in turn contribute to adverse health outcomes. These health consequences can be 'early health damages' that may continue over the life course or may manifest only in a later stage of life ('a latency effect') (Pollitt, Rose, & Kaufman, 2005). Thus, young adulthood health consequences of childhood community adversity can be either due to 'early damages' or 'latency effect' or both. However, little is known about the implications of childhood community contexts for later risk of coronary and cardiovascular disease (hereafter referred to as physical health problems).

Previous studies investigating the influence of community contexts on health outcomes suffer from methodological limitations, including the retrospective nature of information, small sample sizes, systematic biases in participants' characteristics (e.g., primarily European Americans), and investigations of a single health outcome. Thus, the goal of the present study was to extend this line of research by investigating the association between childhood community context and physical health problems in young adulthood, controlling for family socioeconomic characteristics and race/ethnicity, using a large nationally representative sample with longitudinal prospective data.

### 1.1. Cumulative community influence on physical health problems

Life course development and developmental transitions such as that from childhood to adulthood are "instigated and paced" by early community context (Bronfenbrenner, 1977, p. 525). First expounded by Merton (1968), those who "have" tend to continue along a "have" trajectory, while those who "have not" continue having less. Understanding how disadvantage accumulates over time, combined with identified links between community disadvantage and adverse health outcomes, leads to the concept of "cumulative health disadvantage." As a temporal dynamic, the life course involves issues of accumulation (life course) and timing (life stage) creating patterns of cumulative vulnerability (Dannefer, 2003; DiPrete & Eirich, 2006). Early childhood/adolescence may serve as a sensitive period of human ecology particularly vulnerable to community stress, which can lead to cumulative health risks (Jeffreys et al., 2006) and physical health problems later in the life course. The mechanisms by which early contexts pose risks to physical health can occur at individual, family, and community levels.

Community studies have demonstrated that concentration of racial/ethnic minority individuals and families within a neighborhood (i.e. racial/ethnic minority concentration), and residential instability are important determinants of health disparities in later stages of the life course (Sampson, Morenoff, & Gannon-Rowley, 2002).

Wheaton and Clarke (2003) contend that since current individual circumstances should reflect cumulative influences of past life experiences, the real impact of community contexts should be found in long-term relations between early community contexts and individual-level outcomes in later stages of life. They demonstrated that early community context exerts lasting influence on youth health outcomes independent of current community context. Thus, we anticipate long-term persistent effects of childhood community disadvantage on young adult physical health problems through structural/physical constraints as well as through several social, behavioral, and psychological mechanisms.

Research has shown that socioeconomically adverse communities do not meet their residents' dietary health needs (Kaplan, 1995). This may be attributed to several characteristics of lower-income communities (compared to higher-income communities) as well as racially/ethnically segregated neighborhoods (compared to predominantly European American or diverse neighborhoods) such as limited/inconvenient access to grocery stores, high priced healthy food options, and a concentration of unhealthy fast-food restaurants (Zenk & Powell, 2007; Zenk et al., 2005). These types of structural constraints promote youth dietary behaviors that contribute to weight gain and obesity (Santana, Santos, & Noqueira, 2009). In addition, deprived health care resources in adverse communities lend to higher prevalence of illnesses in these communities (Jencks & Mayer, 1990).

Similarly, community adversities can contribute to children's and youth's physical inactivity due to a lack of school facilities, as well as extensive travel time to and from school (Hortz, Stevens, Holden, & Petosa, 2008). Also, impoverished communities may discourage physical activities due to traffic congestion, environmental toxicants, and the unavailability of public recreational space, exercise facilities, sidewalks, bike routes, and safe environments (Park et al., 2003). Safety is a significant concern in poor communities being that community violence is found to associate with physical inactivity (Richmond, Field, & Rich, 2007). The erosion of healthy community norms and values in disadvantaged communities diminish community members' ability to collectively exert social control over risky lifestyles (e.g., body management and health-risk behaviors), instead fostering "health-related subcultures" associated with an increased community level of tolerance for risky lifestyles of youth (Browning & Cagney, 2004; Kowaleski-Jones, 2000; Wickrama & Bryant, 2003).

The community influence on physical health problems may also manifest through youths' learning, emulating, and cognitive processing of negative influences (Bandura, 1977). That is, youth who live in adverse communities are less likely to find positive role models who support and promote healthy activities such as eating balanced diets and regularly engaging in physical activities and exercise; instead, they often may find role models who exert negative influences on their health behaviors (Kowaleski-Jones, 2000). Community research has shown that adverse communities lack collective efficacy to organize health promoting activities due to the erosion of social trust and

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