Health implications of social networks for children living in public housing

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ABSTRACT

This study sought to examine whether: (1) the health composition of the social networks of children living in subsidized housing within market rate developments (among higher-income neighbors) differs from the social network composition of children living in public housing developments (among lower-income neighbors); and (2) children's social network composition is associated with children's own health. We found no significant differences in the health characteristics of the social networks of children living in these different types of public housing. However, social network composition was significantly associated with several aspects of children's own health, suggesting the potential importance of social networks for the health of vulnerable populations.

1. Introduction

Social networks—the web of relationships among individuals—may be an important determinant of children's health and health behaviors. Previous studies have demonstrated a relationship between children's social networks and their alcohol consumption (Mundt, 2011), smoking (Go et al., 2012; Kirke, 2004; Seo and Huang, 2012), body weight and obesity (Cunningham et al., 2012; Renna et al., 2008; Shoham et al., 2012), exercise behaviors (Macdonald-Wallis et al., 2012, 2011; Maturo and Cunningham, 2013; Shoham et al., 2012), and diet (Bruening et al., 2012; De la Haye et al., 2010).

However, children's social networks do not form in isolation. Rather, the social connections that children form result from multiple, overlapping factors including the tendency for children to establish relationships with people who are similar to them, termed homophily (McPherson et al., 2001), and the increased likelihood of relationships forming due to recurring contact or geographic proximity (Hipp and Perrin, 2009; Preciado et al., 2012). While neighborhood environments and housing policies shape who children interact with on a daily basis, the extent to which these contextual factors influence social networks remains largely unknown (Hipp and Perrin, 2009; Sanbonmatsu et al., 2011).

Providing preliminary insight into these relationships, the U.S. Department of Housing and Urban Development's Moving to Opportunity for Fair Housing Demonstration (MTO) randomized families living in public housing to receive different forms of housing vouchers. While MTO did not include a formal enumeration of social networks, it found mixed effects on the social connections of children whose families moved to low-poverty neighborhoods (Sanbonmatsu et al., 2011). Male children whose families received housing vouchers to move to low-poverty neighborhoods were less likely to report having at least one close friend compared to those remaining in public housing developments in high-poverty neighborhoods; female youth whose families received a voucher to move to a low-poverty neighborhood were less likely to have close friends who had ever used drugs (Sanbonmatsu et al., 2011). This finding of a negative effect of moving to a low-poverty neighborhood on one aspect of boys' social networks but a positive effect on one aspect of girls' social networks indicates potentially important gender differences in how neighborhood environments and housing policy shape children's social networks. Furthermore, the directionality of these relationships are consistent with other research on MTO participants, which found positive mental health

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effects of moving to a low-poverty neighborhood among female children but negative impacts on the mental health of male children (Kessler et al., 2014).

Building on this prior research, we first examined whether different types of public housing were associated with the health composition of children's social networks (i.e., the health characteristics and behaviors of the members of children's social networks). Specifically, we leveraged a natural experiment to test whether the social networks of children living in public housing located among wealthier neighbors differed from the social networks of children living in developments in which all residents lived in public housing. This question has important implications for the ability of housing policies to shape children's social networks.

Housing policy's potential influence on the development of social networks may be an important pathway through which neighborhood environments influence health (Leventhal and Brooks-Gunn, 2003a, 2003b; Sampson et al., 2002). While a growing body of research has explored the implications of social networks for adults living in public housing (De Jesus et al., 2010; Flatt et al., 2012; Kleit and Carnegie, 2011; Pollack et al., 2014; Schwartz et al., 2014; Shelton et al., 2011), minimal research exists on the social networks of children living in public housing (Kennedy-Hendricks et al., 2015). Yet evidence is growing that life opportunities are highly affected by where one grows up (Chetty et al., 2014, 2013). This emerging research suggests that low-income children living in communities segregated by economic class have less upward mobility on average and identifies social capital, which is determined by one's social network, as an important socio-environmental correlate of upward mobility (Chetty et al., 2014, 2013). One study of a court-ordered desegregation in Yonkers, New York, found that infrequent contact with neighbors was linked to more anxiety and depression in some children in families that moved (Fauth et al., 2007), raising the possibility that social networks shaped by neighborhood social environments have health implications for children. The scarcity of research on the link between social networks and health among children living in public housing represents a significant gap in the research on vulnerable populations. To this end, our second research objective examined to what extent public housing children's social networks were associated with their own health characteristics. This question seeks to advance our understanding of the contribution of social networks to low-income children's health and well-being.

2. Methods

2.1. Setting

The study took place in Montgomery County, Maryland, an affluent suburb of Washington, DC. Public housing residents live in homes that are either scattered among market-rate housing developments (scattered) or clustered in small public housing projects (clustered). In the market-rate developments, no more than five percent of residents live in public housing, potentially increasing children's exposure to higher income neighbors. In contrast, in the clustered public housing, all residents of these small developments (ranging in size from 19–71 homes) live in public housing units operated by the Montgomery County housing authority, thereby increasing the proximity to lower income neighbors. While both scattered and clustered housing units are located in wealthy neighborhoods (Census tract median income $96,866 for scattered public housing and $92,722 for clustered public housing, $p=0.134$), we explored potential differences that may stem from variation among neighbors that are more physically proximate.

Several features of public housing assignment make it a strong natural experiment (Schwartz, 2012; Schwartz et al., 2015). As public housing units become available, the housing authority randomly selects eligible families from a waiting list. Long waiting lists, limited housing availability, and large differences between rent levels in subsidized versus market-rate apartments lead the majority of families to accept the offer and remain in their originally assigned public housing homes. Prior research describes this setting in greater detail and has estimated that fewer than 10% of families turn down the first unit offered by the county housing authority (Schwartz et al., 2015). In addition, our previous research on this population found that housing type was significantly associated with socioeconomic and health features of adults' social networks and that these features were, in turn, associated with adults' own health (Pollack et al., 2014; Schwartz et al., 2014). We further found that features of caretakers' social networks were linked with children's health behaviors (Kennedy-Hendricks et al., 2015).

2.2. Data sources

We performed an in-person, computer-assisted survey of adults and children living in scattered and clustered public housing within Montgomery County. The public housing authority provided household-level data. The institutional review boards of the Johns Hopkins School of Medicine and the RAND Corporation approved this research.

In August 2011, at the time of recruitment into the study, 948 public housing units for non-elderly households in Montgomery County were occupied. After an introductory mailing, 148 of 948 households (16%) opted out of the survey. One household moved in during the study period, leaving 801 eligible households. A total of 453 heads of household responded to the survey (57% response rate). Of the 453 households, 272 included at least one child. One child per household was randomly selected to participate. Of the 272 eligible households, 209 children (77%) agreed to participate in the interviews, which were conducted in English or Spanish. Interviews included over 80 questions about the children's family, neighborhood and school environment, health, and characteristics of the children's social network members.

2.3. Social network assessment

To assess children's social networks, we used a personal (egocentric) approach (McCarty, 2002). This approach concentrates on the members of a social network, or the "alters," from the perspective of the focal individual (the "ego"), who in this study, was the child (McCarty, 2002). We first asked children to name up to 20 other children (alters) whom they know and have talked with recently, beginning with peers most important to them. We instructed children not to name adults but they could list "family members, friends, neighbors, schoolmates, teammates, people you know from church" or elsewhere. Then, respondents identified which of the alters lived in their neighborhood. Children who named less than 5 neighbors were prompted to name up to 5 additional neighbors. Thus, respondents could have named up to 25 alters. Children identified which network members were friends. In addition, they identified alters with whom they shared secrets in order to identify close friends for sensitivity analyses.

To assess the health characteristics of respondents' network members, children provided information whether each of their alters: (1) does a lot of exercise such as playing sports or running around; (2) tries to eat fruits and vegetables most days; (3) is overweight or fat; and (4) often seems sad or unhappy. Teens, ages 13 to 18, also identified (5) which alters drink alcohol socially. Although these five measures reflect the child's perceptions of