

**PAA EXTENDED ABSTRACT**

**NEIGHBORHOOD CONTEXT, CHILDREN'S LEISURE ACTIVITIES, AND CHILDHOOD OBESITY**

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Does the rhythm of children's everyday lives vary in different community contexts and is this variation associated with the risk of childhood obesity? The social organization of neighborhoods is strongly associated with negative health outcomes among children, including obesity and its associated problems (Robert 1999; Leventhal and Brooks-Gunn 2000; Earls and Carlson 2001; Cagney and Browning 2004; Browning et al 2004). How children spend their time is also associated with obesity, with lower time in active leisure like sports and more time in passive leisure like TV-watching linked with overweight (Curtin, Randolph, and Scott 2006; Hofferth and Sandberg 2001; National Center for Health Statistics 2005). Although neighborhood effects and time use have each been shown to significantly affect children's weight separately, there has been almost no research connecting the two. Yet neighborhood effects on children's time use are often proposed to be a key mechanism in producing the observed variability in health outcomes between places.

We advance understanding of the influence of neighborhood context on childhood obesity by studying time use as a *mechanism* that links place level processes to individual outcomes, using the 2002 Panel Study of Income Dynamics' Child Development Supplement (PSID-CDS). The innovation of our study is to assess empirically the pathways between neighborhood contexts, time use, and children's outcomes implicit in prior research. We conceptualize time use as the behavioral manifestation of family responses to the neighborhood context and thereby a mechanism of the effect of place of residence on obesity. We expect that time use will serve as a more direct measure of the relationship between neighborhood and family social processes than previously accomplished in research on childhood obesity.

We draw on theories of neighborhood effects on health that identify three features of the residential context that prior research suggest will be particularly influential for childhood

obesity—socioeconomic resources, social disorder, and collective efficacy. Poverty and racial segregation reduce the *resources* available for local institutions and activities, resulting in negative health consequences, while neighborhood affluence appears to be protective for health (Roberts 1999; Wen, Browning, and Cagney 2003). Disadvantaged neighborhoods typically have fewer parks, recreation facilities, and organized sports than privileged neighborhoods and thus fewer opportunities to achieve the physical fitness important to maintaining normal weight (Boardman et al. 2005; Datar and Sturm 2004; Powell, Slater, and Chaloupka 2004).

Neighborhoods with a high degree of *disorder* are also harmful to health, and may be particularly important in encouraging childhood obesity (Boardman et al. 2005). There are fewer opportunities for children to play outside and participate in organized sports in unsafe places and disorder also discourages business investment in a variety of food outlets. Neighborhoods with higher *collective efficacy* including more social cohesion between residents and a willingness to exert social control over the behavior of people in the neighborhood are generally healthier places for kids and adults (Sampson, Morenoff, and Earls 1999; Browning and Cagney 2002). Collective efficacy affects neighborhood characteristics important to maintaining healthy weight, including monitoring the streets and parks, maintaining local institutions even in the face of economic difficulties, and watching children (Cohen et al. 2006). Children are therefore at greater risk of obesity and overweight in disadvantaged, disorderly neighborhoods with lower collective efficacy because each of these discourages active leisure and encourages sedentary activity more than in advantaged and safer places with higher collective efficacy (Kuo et al. 2007).

We expect that neighborhood context affects children's participation in active and passive leisure, contributing to the differential risks of obesity in different places. Burton and

Jarrett (2000) report that how families intervene in the associations between neighborhoods and child outcomes needs further attention and highlight time use differences as key. In neighborhoods with fewer resources, more disorder, and lower collective efficacy, we expect that parents and children will find and seek fewer opportunities for active leisure and rely more on passive leisure to occupy children's time. Families may respond to negative neighborhood context through strategies such as doing outside activities only during restricted "safe" times, restricting contact with neighbors, keeping children in the "haven" of homes around parental presence as much as possible, and engaging in more controlling parenting practices (Browning et al. 2005). Parents may also limit children's exposure to non-family environments and activities, reducing involvement in activities that promote cognitive and physical functioning (Arendell 2001; Best 1990; Lareau 2000; Warr and Ellison 2000). While the childhood obesity epidemic is so widespread it affects both affluent and poor children in both privileged and disadvantaged places, we anticipate that the differences between neighborhood settings results in greater impacts on the least advantaged kids.

We use multinomial logistic regression to estimate the likelihood that children are normal, at risk of overweight, or overweight. We construct measures to capture our theoretical interest in the effects of differences in neighborhood resources, levels of disorder, and degree of collective efficacy using a combination of Census data and reports of neighborhood characteristics by the primary caregiver of the CDS sample child. We construct time use measures by combining the weekday and weekend day data, aggregated to an estimate of weekly time use. For active leisure, we calculate a standard score of minutes per week engaged in any of 31 types of physical recreation (including sports and games, exercise, and active outdoor pursuits such as bicycling and hiking). Passive leisure is the standard score for minutes watching TV and

playing video or computer games. We control for a range of child and family characteristics known to influence child weight. We also include several significant primary caregiver characteristics including age, BMI, and whether a college graduate.

We find support for our expectation that time use is a mechanism that mediates the effect of neighborhood context on childhood obesity. In separate models, we demonstrate that both neighborhood context and children's leisure activities significantly affect the risk of obesity. Children living in disadvantaged neighborhoods and places with lower collective efficacy are more likely to be overweight than children in privileged neighborhoods and places with higher collective efficacy. Children who spend more time in passive leisure are also more likely to be overweight. When we combine the two sets of effects in the same model, we find that the effect of socioeconomic disadvantage declines while the effect of time in passive leisure remains unchanged. This supports the expectation that time use is a key reason that children in disadvantaged neighborhoods are more likely to be overweight. The time use measures have little impact, however, on the effect of collective efficacy. This supports previous research that shows that different neighborhood characteristics affect health outcomes through different pathways. These results suggest that children's time in passive leisure is particularly influenced by neighborhood socioeconomic resources—children's time use appears to *mediate* the effect of neighborhood socioeconomic disadvantage so that the effect of the social context occurs at least in part through different activity patterns.

Understanding how children's time use in variable neighborhood contexts influences childhood obesity is a vital social issue, urgently needed to inform public health policy initiatives. The prevalence of obesity among children is alarming: 26% of 6 to 19 year olds and 21% of 2 to 5 year olds are overweight or at risk of overweight. Children who are at risk of or

overweight during childhood are more likely to be obese adults and have increased risks of both childhood and adult morbidity (Ogden et al. 2002). This research provides important data on the mechanisms through which neighborhood context affects children's health. Improved knowledge about the role of time use in the influence of neighborhood environments on childhood obesity will help direct further research and policy interventions aimed at reversing the epidemic of childhood obesity because efforts to reduce children's weight gain will be most effective if targeted at the specific social mechanisms that contribute to obesity.