



Neighborhood environments and obesity among Afro-Caribbean, African American, and Non-Hispanic white adults in the United States: Results from the National Survey of American Life



Samaah M. Sullivan^{a,*}, Meghan M. Brashear^{a,1}, Stephanie T. Broyles^{b,2}, Ariane L. Rung^{a,1}

^a Epidemiology Program, Louisiana State University Health Sciences Center, School of Public Health, 2020 Gravier St., 3rd Floor, New Orleans, LA 70112, USA

^b Preventive Medicine & Healthy Aging, Pennington Biomedical Research Center, 6400 Perkins Rd., Baton Rouge, LA 70808, USA

ARTICLE INFO

Available online 28 December 2013

Keywords:

Neighborhood
Built environment
Ecological
Body mass index
Obesity
Physical activity
Diet

ABSTRACT

Objective. To examine possible associations between perceived neighborhood environments and obesity among a U.S. nationally representative sample of Afro-Caribbean, African American, and Non-Hispanic white adults.

Methods. Data was used from the 2001–2003 National Survey of American Life (NSAL). All measures including neighborhood characteristics, height, and weight were self-reported. Multivariate logistic regression was used to compute odds ratios (ORs) of obesity (body mass index (BMI) ≥ 30 kg/m²) based on perceived neighborhood physical and social characteristics.

Results. The odds of obesity were significantly lower for adults who reported involvement in clubs, associations, or help groups (odds ratio (OR): 0.62; 95% confidence interval (CI): 0.44, 0.85) and perceived that they had a park, playground, or open space in their neighborhood (odds ratio (OR): 0.68; 95% confidence interval (CI): 0.47, 0.98). These associations remained significant after adjusting for leisure-time physical activity. Race/ethnicity appeared to modify the association between involvement in clubs, associations, or help groups and obesity.

Conclusions. Providing parks, playgrounds, or open space or increasing the perception of those amenities may assist in the prevention of obesity, especially in ethnically diverse neighborhoods in the United States. More research is needed to investigate how perceptions of the neighborhood environment influence obesity and whether perceptions of the neighborhood environment differ between individuals within the same neighborhoods.

© 2014 Elsevier Inc. All rights reserved.

Introduction

Recent data from 2009–2010 showed that nearly 36% of adults in the United States were obese (Flegal et al., 2012). Although obesity is one of the most preventable causes of morbidity and mortality among adults in the United States (Danaei et al., 2009), the prevalence of obesity is expected to reach 50% by 2030, and the health care costs associated with obesity are expected to range from \$860 to \$956 billion dollars (Wang et al., 2008). These projections are estimated to be higher among African Americans who have a disproportionally higher prevalence of obesity (Wang et al., 2008). The prevalence of obesity has already reached 50% among African Americans compared to 35% of Non-Hispanic white adults (Flegal et al., 2012).

Obesity is primarily caused from an imbalance between energy consumption (diet) and energy expenditure (physical activity) (Papas et al., 2007). Research to understand disruptions between this dyad and racial/ethnic disparities in obesity has focused on determinants and deterrents in the neighborhood environment, theoretically based on ecological models of health behavior (Glanz et al., 2002; Sallis et al., 2006). The walkability of neighborhoods and availability of and proximity to neighborhood amenities, parks, and recreational facilities can affect opportunities for discretionary and incidental physical activity (Brownson et al., 2009; Giles-Corti et al., 2003; Sallis and Glanz, 2009). The proximity to supermarkets and availability of fruits and vegetables affects accessibility to healthy food options (Sallis and Glanz, 2009). Additionally, social characteristics of the environment such as neighborhood safety, crime, and drug problems can also influence obesity through determinants of physical activity behavior (Burdette et al., 2006; Christian et al., 2011; Yang et al., 2012). Inequalities in the built environment and neighborhood social characteristics may contribute to racial/ethnic disparities in the prevalence of obesity.

* Corresponding author. Fax: +1 504 568 5701.

E-mail address: ssull1@lsuhsc.edu (S.M. Sullivan).

¹ Fax: +1 504 568 5701.

² Fax: +1 225 763 3009.

However, no current study, to our knowledge, has used data from a nationally representative survey among adults in the U.S. that includes respondents' perceptions of their neighborhood characteristics (built environment and neighborhood social characteristics). The purpose of this study is to examine possible associations between perceived neighborhood environments and obesity among a nationally representative sample of Afro-Caribbean, African American, and Non-Hispanic white adults in the United States using the National Survey of American Life (NSAL).

Methods

Sample

The NSAL is one of three nationally representative surveys of U.S. adults included as part of the Collaborative Psychiatric Epidemiology Studies (CPES) conducted by the Survey Research Center (SRC) of the Institute for Social Research at the University of Michigan (Jackson et al., 2004). The NSAL is a cross-sectional survey that was conducted between 2001 and 2003 using a four-stage national probability sample of U.S. noninstitutionalized adults (aged ≥ 18 years) who lived in households within the coterminous 48 states with three target populations: African Americans, Afro-Caribbeans, and Non-Hispanic white Americans (Heeringa et al., 2004; Jackson et al., 2004). Black respondents were categorized as either African American or Afro-Caribbean if they identified any ancestral ties to the Caribbean (Heeringa et al., 2004). There were a total of 6082 respondents (1621 were Afro-Caribbean, 3570 were African American, and 891 were Non-Hispanic white). Additional information on the sample design of the NSAL has been described elsewhere (Heeringa et al., 2004; Jackson et al., 2004; Pennell et al., 2004).

Measures

Education was collected as a categorical variable with four levels: less than high school, high school graduate, some college, and college or higher. Age and annual household income (top coded at \$200,000 or more) were both originally provided as continuous variables. Based on prior research using the same dataset (Finlayson et al., 2010), and lack of a monotonic trend of income with obesity in this study, annual household income was recoded into quintiles: less than \$12,000, \$12,001–\$21,999, \$22,000–\$34,999, \$35,000–\$53,999, and \$54,000–\$200,000. Self-reported height (inches) and weight (pounds) were used to calculate BMI (weight in kilograms/height in meters squared) which was then dichotomized as a measure of obesity status ($\text{BMI} \geq 30 \text{ kg/m}^2$).

To assess neighborhood crime, respondents were asked, "How often are there problems with muggings, burglaries, assaults or anything else like that in your neighborhood?" Responses of "very often", "fairly often", and "not too often", were considered as one group indicating presence of neighborhood crime, while "hardly ever" and "never" were used to indicate no neighborhood crime. Respondents were also asked, "How much of a problem is the selling and use of drugs in your neighborhood?" "Very serious" and "fairly serious" responses were considered to be indicative of drug problems while "not too serious" and "not serious at all" were indicative of none. Other self-reported neighborhood variables included participation in block clubs, associations, or groups in neighborhood; the presence of a park, playground, or open space; supermarket; and library. Leisure-time physical activity (LTPA) was assessed with the following question: "How often do you engage in active sports or exercise?" Possible response options included "never", "rarely", "sometimes" and "often".

Statistical analysis

Statistical procedures that accounted for the complex sampling methods of the NSAL were used with SAS version 9.2 (SAS Institute Inc., Cary, NC). Proc surveylogistic procedures were performed to determine the odds of obesity and the effects of: demographics (model 1), and addition of neighborhood social characteristics (model 2), physical characteristics (model 3) and LTPA (model 4). Interaction terms of race and significant variables were then added one at a time to determine if the odds of obesity changed across race/ethnic groups. Logistic regression analyses were also performed to show differences in the odds of obesity stratified by race/ethnicity.

Table 1

Demographic Characteristics, 2001–2003 National Survey of American Life (N = 6082).

	Total sample N (wt.%)	Obese ^a N (wt.%)	Not obese ^a N (wt.%)	p-Value ^b
Total	6082 (100)	2181 (35.4)	3547 (64.6)	
Gender				
Male	2286 (45.9)	674 (40.6)	1525 (50.4)	<.0001
Female	3796 (54.1)	1507 (59.4)	2022 (49.5)	
Race/ethnicity				
African Caribbean	1621 (3.5)	472 (3.0)	1070 (3.9)	<.0001
African American	3570 (46.8)	1422 (54.6)	1917 (42.5)	
Non-Hispanic white	891 (49.7)	287 (42.4)	560 (53.6)	
Education				
Less than high school	1375 (19.6)	551 (23.8)	741 (17.6)	0.0013
High school graduate	2136 (34.2)	795 (34.2)	1214 (34.7)	
Some college	1468 (24.4)	498 (23.6)	880 (23.6)	
College or higher	1103 (21.8)	337 (18.4)	712 (24.0)	
Income				
Less than \$12,000	1179 (15.6)	441 (15.4)	666 (15.6)	0.1197
\$12,001–\$21,999	1203 (16.2)	455 (17.0)	670 (15.8)	
\$22,000–\$34,999	1250 (18.9)	449 (20.4)	715 (17.7)	
\$35,000–\$53,999	1224 (22.0)	442 (22.1)	719 (21.7)	
\$54,000–\$200,000	1226 (27.3)	394 (25.1)	777 (29.2)	
Age (mean, SD)	43.6 (0.7)	44.7 (0.9)	42.9 (0.8)	0.0843

^a Column percentages of those who are obese or not obese, not percentage of the whole sample.

^b Rao–Scott Chi-square p-value indicates whether the distribution of obesity status was significantly different by sub-group.

Results

Demographic characteristics of respondents and weighted percentages are presented in Table 1. The distribution of obesity was significantly different for gender ($p < .0001$), race/ethnicity ($p < .0001$), and education ($p = 0.0013$). Neighborhood characteristics are presented in Table 2, which differed by race/ethnic groups.

In multivariate logistic regression (Table 3, model 1), females and African Americans had 1.52 (95% CI: 1.34, 1.73) and 1.60 (95% CI: 1.27, 2.03) greater odds of obesity, respectively. Adults with some college education (OR: 0.76; 95% CI: 0.58, 0.99) or completed college (OR: 0.62; 95% CI: 0.48, 0.79) had decreased odds of obesity compared to those with less than a high school education. Adults in the 3rd (OR: 1.39; 95% CI: 1.07, 1.80) and 4th (OR: 1.37; 95% CI: 1.09, 1.73) quintiles for income had significantly greater odds of obesity compared to adults in the lowest quintile for income. After adding social environmental factors into model 2, the odds of obesity remained significantly higher among females (OR: 1.66; 95% CI: 1.23, 2.25), African Americans (OR: 1.40; 95% CI: 1.01, 2.08), and increasing age (OR: 1.02; 95% CI: 1.01, 1.03). Adults who reported that they were involved in clubs, associations, or help groups in the neighborhood were significantly less likely to be obese (OR: 0.63; 95% CI: 0.45, 0.89). In model three, the odds of obesity were significantly lower for adults who reported that they were involved in clubs, associations, or help groups (OR: 0.62; 95% CI: 0.44, 0.85) and perceived that they had a park, playground, or open space in their neighborhood (OR: 0.68; 95% CI: 0.47, 0.98). These associations remained statistically significant after adjusting for LTPA in model 4.

Interaction terms were tested in model 4 showing that the interaction term of race and reported participation in clubs, associations, or help groups was statistically significant ($p = 0.0038$) while the interaction term of race and perception of having a park, playground, or open space was not significant ($p = 0.4375$) (results not shown). The odds of obesity by demographics and neighborhood amenities were stratified by race (Table 4) to further investigate whether race modified the associations between these neighborhood characteristics and obesity. Female gender and increasing age were significantly associated with higher odds of obesity among African American and Non-Hispanic whites. The odds of obesity were significantly lower for Non-Hispanic white adults who reported that they participated in

Download English Version:

<https://daneshyari.com/en/article/6047060>

Download Persian Version:

<https://daneshyari.com/article/6047060>

[Daneshyari.com](https://daneshyari.com)