



Racial and ethnic differences in perceived safety barriers to walking, United States National Health Interview Survey – 2015



Geoffrey P. Whitfield^{a,*}, Susan A. Carlson^a, Emily N. Ussery^a, Kathleen B. Watson^a, David R. Brown^a, David Berrigan^b, Janet E. Fulton^a

^a Division of Nutrition, Physical Activity, and Obesity, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, 4770 Buford Highway MS F-77, Atlanta, GA 30341, United States of America

^b Division of Cancer Control and Population Sciences, National Cancer Institute, National Institutes of Health, 9609 Medical Center Drive MSC 7344 Room 3E522, Bethesda, MD 20892-7344, United States of America

ARTICLE INFO

Keywords:

Epidemiology
Walking
Population health
Racial/ethnic disparities

ABSTRACT

Barriers to safe walking may prevent people from being physically active, and previous reports have identified differences in barriers to safe walking across racial and ethnic groups. The purpose of this research was to determine the role demographic characteristics play on racial/ethnic differences in perceived barriers to safe walking and determine if racial/ethnic differences vary by urban/rural residence and Census region. Participants in the 2015 National Health Interview Survey Cancer Control Supplement ($n = 31,433$ adults ≥ 18 years) reported perceived barriers to safe walking (traffic, crime, and animals) and demographic characteristics. Urban/rural residence and Census region were based on home addresses. We calculated adjusted prevalence of barriers by race/ethnicity using logistic regression; geographic differences in barriers across racial/ethnic groups were examined via interaction terms. After adjustment for demographic characteristics, non-Hispanic blacks (blacks) and Hispanics reported crime and animals as barriers more frequently than non-Hispanic whites (whites) (crime: blacks, 22.2%; Hispanics, 16.7%; whites, 9.0%; animals: blacks, 18.0%; Hispanics, 12.4%; whites, 8.5%). Racial/ethnic differences in perceived crime as a barrier were more pronounced in the Northeast and Midwest than in the South and West. Urban-dwelling blacks (all regions) and Hispanics (Midwest and South) reported animals as barriers more frequently than whites. Racial/ethnic differences in perceived barriers to safe walking remained after adjusting for demographic characteristics and varied by geographic location. Addressing perceived crime and animals as barriers to walking could help reduce racial/ethnic differences in physical activity, and several barriers may need to be assessed to account for geographic variation.

1. Introduction

Walking is a common, accessible activity that can help people start and maintain an active lifestyle (U.S. Department of Health and Human Services., 2015). Barriers to walking and other physical activities can include concerns for personal safety (U.S. Department of Health and Human Services., 2015) related to traffic, crime, and animals. Favorable perceptions of neighborhood crime, traffic, and general safety have been directly associated with walking in cross-sectional and longitudinal studies (Evenson et al., 2012; Foster et al., 2016; Mason et al., 2013), but the strength and significance of the associations varied for transportation and leisure walking. Other studies have shown no or mixed associations between perceived safety and walking, but differences in study design, measurement, and variable definitions may underlie these inconsistencies (Kerr et al., 2015; Saelens and Handy,

2008).

Barriers to safe walking may contribute to racial/ethnic differences in physical activity (National Center for Health Statistics., 2016) and walking (Ussery et al., 2017). Concerns about the safety of walking are different across racial and ethnic groups. For example, in several studies, black participants (compared to white participants) and Hispanic participants (compared to non-Hispanic participants) have reported more barriers to safe walking, including animals, crime, and general safety concerns (Lovasi et al., 2009; Paul et al., 2016; Schroeder and Wilbur, 2013). Further, differences in perceived safety may have widened from 2000 to 2010, with decreases in neighborhoods with a greater than average proportion of black residents and increases in neighborhoods with a smaller than average proportion of black residents, after controlling for socioeconomic and demographic characteristics (Kaiser et al., 2016). Reducing racial/ethnic health

* Corresponding author.

E-mail address: xdh5@cdc.gov (G.P. Whitfield).

disparities is a national public health priority (United States Department of Health and Human Services, 2011), and addressing differences in physical activity and walking is an important strategy toward achieving health equity (Centers for Disease Control and Prevention, 2017). However, at the national level, it is unclear whether additional demographic characteristics, such as sex, age, and education level influence racial/ethnic differences in perceived barriers to safe walking. Understanding these complex relations could inform strategies to meet national goals for racial/ethnic health equity (United States Department of Health and Human Services, 2011).

Geography may also be an important influence on racial/ethnic differences in safety concerns. There are established differences in racial/ethnic composition across Census regions and in urban and rural areas (United States Census Bureau, 2010), and factors related to walking safety (e.g., speed limits, sidewalks, and unmaintained lots) vary from place to place (Adams et al., 2014; Kerr et al., 2016; Thornton et al., 2016). However, it is not known if racial/ethnic differences in barriers to safe walking differ across regions or in urban/rural areas. Providing access for all to safe places for physical activity and walking is a national public health goal (U.S. Department of Health and Human Services, 2015; United States Department of Health and Human Services, 2011), and determining where racial/ethnic differences are greatest could help efficiently target public health and transportation programs for safe walking.

Previous national-level reports (Paul et al., 2016; Schroeder and Wilbur, 2013) have lacked the sample size to examine the influence of demographic characteristics and geography (e.g., urban and rural areas, Census regions) on racial/ethnic differences in barriers to safe walking. The 2015 Cancer Control Supplement of the National Health Interview Survey (NHIS) assessed three perceived barriers to safe walking (crime, traffic, and animals) among a nationally-representative sample of U.S. adults. This large sample provides a unique opportunity to address the limitations of previous reports. The purposes of this paper are to 1) determine if demographic characteristics influence national-level racial/ethnic differences in perceived barriers to safe walking and 2) determine if racial/ethnic differences in perceived barriers to walking are consistent in urban and rural areas and across Census regions.

2. Methods

2.1. Sample

Full NHIS methods are published by the National Center for Health Statistics (NCHS) (National Center for health Statistics, 2017a). Briefly, NHIS is an annual in-person survey of U.S. households and uses multi-staged, probability sampling to create a representative sample of the non-institutionalized U.S. population. All study variables, with the exception of urban/rural residence, were publicly available for download from NCHS. All analyses utilizing urban/rural residence were performed in the Research Data Center after approval by NCHS (National Center for health Statistics, 2017b). The sample adult response rate was 55.2%, and data are weighted to account for non-response and ensure representativeness. The Research Ethics Review Board of NCHS approved all NHIS activities, and all participants provided informed consent.

The 2015 Cancer Control Supplement of the NHIS included 33,672 adult respondents aged ≥ 18 years, of whom 2109 were missing at least one response to a safety barrier. An additional 130 respondents were missing information on education level, for a final sample size of 31,433 with complete information for all study variables. When compared by sex, age group, or race/ethnicity, respondents in the analytic sample were not substantially different from the full Cancer Control Supplement sample ($< 1\%$ difference in all strata, weighted analyses).

2.2. Measures

Perceived barriers to safe walking were assessed for one household adult in the Cancer Control Supplement. Participants were asked “Where you live...

- ...does traffic make it unsafe for you to walk?”
- ...does crime make it unsafe for you to walk?”
- ...do dogs or other animals make it unsafe for you to walk?”

Response categories included “yes” or “no”, and those who declined to answer ($n = 64$) or answered “I don’t know” ($n = 189$) were treated as missing.

Participants reported demographic characteristics in the NHIS interview. Sex was self-reported as male or female. Age was categorized as 18–24, 25–34, 35–44, 45–64, and ≥ 65 years. Race and ethnicity were categorized as non-Hispanic white (white), non-Hispanic black (black), Hispanic, and non-Hispanic other. Interpretation of results for the “other” category was difficult because multiple races were grouped together and the sample size was small. Therefore, this category was retained for reference purposes, but interpretation focused on whites, blacks, and Hispanics. Education level was used as an indicator of socioeconomic position (Shavers, 2007) and was categorized as less than high school, high school graduate or equivalent, some college, and college degree or higher. Education was used because of a low prevalence of missing values and similarities to other markers of socioeconomic position, such as family income.

Two geographic characteristics were examined: urban/rural residence and Census region. Urban/rural residence was based on the 2010 Census urban/rural designation for Census tracts (Ratcliffe et al., 2016). Briefly, urban areas were identified as Census tracts with at least 1000 people/mile² and adjacent tracts with at least 500 people/mile². Additionally, some nonresidential urban land uses (e.g., airports) and non-continuous urban developments are designated as urban. Any areas not designated as urban were classified as rural (Ratcliffe et al., 2016). Census region (Northeast, Midwest, South, or West) was based on state of residence (United States Census Bureau, 2017).

2.3. Analysis

For each barrier, the prevalence of “yes” responses, and corresponding 95% confidence interval was estimated overall and stratified by demographic and geographic characteristics. Associations between reported barriers and both demographic and geographic characteristics were tested with adjusted Wald tests. When a significant association was detected, pairwise differences of a given barrier between levels of a covariate were tested with adjusted Wald tests including a Bonferroni correction for multiple comparisons. Trends across ordered categories were tested with orthogonal contrasts.

Multiple logistic regression analyses were used to examine the association between race/ethnicity and each barrier to walking, while adjusting for potential confounding by other demographic characteristics. To examine variation in racial/ethnic differences in barriers by geography, interaction terms were added to the model. First, effect modification by urban/rural residence was assessed through a race/ethnicity by urban/rural two-way interaction. If significant, the model was stratified by urban/rural residence and additional effect modification by Census region was assessed with a race/ethnicity and region interaction term. If the initial urban/rural interaction term was not significant, effect modification by Census region was assessed through a race/ethnicity by region interaction, while including adjustment for the main effect of urban/rural residence. Results with statistically significant effect modification were stratified by the modifying variable(s).

All analyses were performed in Stata 13 (Stata Corporation, College Station, Texas, U.S.A.) using survey commands to account for the complex survey design and weighting. Results, including interaction

Download English Version:

<https://daneshyari.com/en/article/8693430>

Download Persian Version:

<https://daneshyari.com/article/8693430>

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