



HHS Public Access

Author manuscript

J Phys Act Health. Author manuscript; available in PMC 2022 October 26.

Published in final edited form as:

J Phys Act Health. 2017 January ; 14(1): 36–44. doi:10.1123/jpah.2015-0685.

Walking and the Perception of Neighborhood Attributes Among U.S. Adults—2012

Prabasaj Paul

Division of Healthcare Quality Promotion, Centers for Disease Control and Prevention, Atlanta, GA.

Susan A. Carlson,

Janet E. Fulton

Division of Nutrition, Physical Activity, and Obesity, Centers for Disease Control and Prevention, Atlanta, GA.

Abstract

Background: The association between walking and environmental attributes depends on walking purpose. This study, based on a large survey of U.S. adults, examined the association between perceived neighborhood safety and built environment attributes, and walking for transportation and leisure.

Methods: Data were obtained on transportation and leisure-time walking, perceived neighborhood safety and built environment attributes, and demographic characteristics from the summer wave of the 2012 ConsumerStyles survey of 3951 U.S. adults. Associations were examined by demographic characteristics.

Results: Seventy-five percent of respondents reported walking for either transportation (54%) or leisure (56%) in the past week, 59% reported no safety concern, and 36% reported absence of any built environment attribute of walkability nearby. Respondents with more education, and those who lived in metropolitan areas were more likely to report built environment attributes supportive of walking. All built environment attributes examined, as well as safety concern due to speeding vehicles, were associated with walking after adjustment for demographic characteristics.

Conclusion: Walking, particularly for transportation, is associated with many built environment attributes among U.S. adults. These attributes may be important to consider when designing and modifying the built environment of communities, especially those which are less walkable.

Keywords

physical activity; walkability; public health

Regular physical activity is associated with lower risk of early death and several chronic diseases such as coronary heart disease, stroke, type 2 diabetes, depression and some types of cancer.^{1,2} The 2008 Physical Activity Guidelines for Americans recommends that adults

engage in aerobic physical activity of moderate intensity (like brisk walking) for at least 150 minutes per week, or vigorous intensity (like jogging) for at least 75 minutes per week, or an equivalent combination, in bouts of at least 10 minutes, for substantial health benefits.¹ About 30% of U.S. adults, however, report no leisure time aerobic physical activity, and only half report enough leisure time activity to meet the aerobic physical activity guideline.³

Walking is the most popular leisure-time physical activity among U.S. adults, across demographic groups and among those who meet the aerobic physical activity guideline.^{4–8} People also walk for reasons other than leisure, such as transportation to get to school, work, stores and services. Among U.S. adults in 2010, about half reported walking during their leisure time, and less than one-third reported walking for transportation.⁷ Walking during leisure time was more common among whites and Asians than among Hispanics or blacks, whereas walking for transportation was less common among whites.⁷ Adults with college degrees were more likely to walk during leisure time and for transportation than those with less education.⁷ Understanding reasons for these demographic differences may increase the reach and effectiveness of approaches to promote walking.

Community-scale and street-scale design policies that influence the built environment are recommended approaches to promote physical activity, including walking.^{9,10} Examples of the design approaches recommended are building homes closer to stores and services, creating a well-connected system of sidewalks, improving street lighting and landscaping, and reducing traffic speed.^{9,10} The strengths of associations of walking with features of the built environment depend on the walking purpose. Transportation walking is associated with environmental attributes such as population and housing density, land use mix, distance to shops and services, and street connectivity.^{11,12} Leisure walking has weaker associations with these attributes, but is more consistently associated with environmental aesthetics, and with access to parks, walking trails, and recreational facilities.^{12,13}

Findings about the association between safety and walking are mixed. Environmental factors such as lack of sidewalks and crosswalks, poor lighting, and streets with high-speed traffic compromise pedestrian safety.^{14–16} Traffic-related concerns may discourage walking among adults.^{12,17} Associations between walking and incidence of crime are weak or inconsistent among studies.^{18–23} Moreover, most U.S. studies that have examined the association of walking and perception of safety or the built environment are limited to particular population subgroups,^{24,25} or geographic areas.^{21,26–29} These studies are unable to determine how environmental perception differs among subgroups, or to obtain estimates that are applicable to more diverse populations. A diverse and large sample is necessary to examine variations in perception of similar environments, and for generalizable estimates of the association of walking behavior with perceived environmental attributes.

This study is based on a survey of a large diverse sample of U.S. adults that included questions on walking behavior and on neighborhood safety and built environment attributes. We focused on 2 questions: how does perception of the neighborhood safety and built environment attributes differ by demographic characteristics, and what are the associations between perception of the neighborhood environment and walking—for transportation or during leisure—among U.S. adults? The results may be useful in guiding public health,

transportation and planning efforts to promote walking as part of a physically active lifestyle by identifying and understanding the demographic and environmental characteristics associated with walking for transportation and during leisure.

Methods

Survey Description

Data in this analysis come from the summer wave of Porter Novelli's 2012 ConsumerStyles database. Each year, the ConsumerStyles database is built from 4 waves of web-based surveys that gather insights about American consumers. All data are collected by Knowledge Networks: a GfK Company. In 2012, the first summer wave of the surveys included questions about walking behavior and perceptions of neighborhood safety and built environment.

In 2012, the spring wave of ConsumerStyles was conducted among 11,636 adults age 18 or older who belong to the GfK Knowledge Panel. The first summer wave of the ConsumerStyles surveys was sent during June and July to 6402 adults who previously completed the spring wave. The survey took approximately 38 minutes (median) to complete. Respondents were not required to answer any of the questions and could exit the survey at any time. A total of 4170 surveys were returned, a response rate of 65%. Those who completed the survey received reward points worth approximately \$10 and were entered into a monthly drawing.

Resulting data were weighted to match the U.S. Current Population Survey proportions for sex, age, household income, race/ethnicity, household size, education level, census region, metro status, and whether a respondent had Internet access before joining the panel. Analysis of these data were exempt from institutional review board approval because personal identifiers were not included in the data file. The CDC licensed the results of the 2012 Summer ConsumerStyles survey from Porter Novelli. Further details on the ConsumerStyles survey are available elsewhere.³⁰

Sample Selection

From an initial sample of 4170 adults, 63 were excluded because of missing data on walking, and an additional 52 were excluded because of missing data on perception of the neighborhood. Respondents with missing data were more likely to be women than those without missing data. The distribution by age, education, race/ethnicity, region of residence, and metro (Metropolitan Statistical Area, or MSA) status were similar among those with and without missing data. Finally, we excluded 104 respondents because of their reported inability to walk. The final analytic sample consisted of 3951 participants.

Measurement of Transportation and Leisure Walking

Transportation walking was assessed by asking participants, "In the past 7 days, how many days did you walk to get some place (use walking as your transportation) that took you at least 10 minutes?" Leisure walking was assessed with, "Sometimes you may walk for fun, relaxation, or exercise. During the past 7 days, how many days did you walk for at least

10 minutes for any of these reasons? Please do not include walking the dog or walking for transportation.” Consistent with a definition used in other studies,^{4,6,7} respondents reporting at least 1 day of walking for transportation were categorized as transportation walkers; those reporting at least 1 day of walking for fun, relaxation, or exercise were categorized as leisure walkers. For this analysis, any walking was defined as transportation walking, leisure walking, or both. The questions used to assess walking closely follow, but are not identical to, walking questions on the Cancer Control Supplement to the National Health Interview Survey in 2010 and 2015.^{31,32}

Measurement of Demographic Characteristics

Demographic data used in the analysis were collected during the ConsumerStyles first wave of data collection in the spring. Self-reported age was categorized to 18–34, 35–49, 50–64, and 65 years. Collapsing non-Hispanic other and non-Hispanic multiracial, ethnicity and race was categorized to non-Hispanic white, non-Hispanic black, Hispanic, and other. Education level was categorized by highest level completed: less than high school (12th grade or lower, without diploma), high school (high school graduate or GED), some college (some college, including associate degree), and college graduate (bachelor’s, master’s, professional, and doctoral degrees). Metro status of location of residence (metro or nonmetro) was based on the MSA definition of the U.S. Office of Management and Budget.³³ A U.S. Census region—Midwest, Northeast, South, or West—was assigned, based on the state of residence.³⁴

Measurement of Perception of the Neighborhood

Perception of neighborhood safety attributes was assessed by asking participants, “Thinking about pedestrian safety, please indicate which, if any, of the following things make it difficult to walk in your neighborhood?” Response options were “inadequate sidewalks,” “inadequate crosswalks or intersections,” “speeding motor vehicles,” “poorly lit streets,” “crime,” “dogs or other animals,” and “none of these.”

Perception of neighborhood built environment attributes was assessed by asking participants, “Which, if any, of the following are true about your neighborhood? Within walking distance means a 10–15 minute walk from your home.” Response options were: “There are many places to go within easy walking distance of my home.”; “It is easy to walk to a transit stop (ie, bus, subway, or train) from my home.”; “There are many interesting things to look at while walking in my neighborhood.”; “Stores that I like are within easy walking distance of my home.”; “There are many alternative routes for getting from place to place in my neighborhood. I don’t have to go the same way every time.”; and “None of these.” These items are a subset of those on the Neighborhood Environment Walkability Scale.^{35,36}

Statistical Analysis

The prevalence of transportation, leisure and any walking (proportion participating in walking during the past 7 days) was examined by demographic characteristics. The proportion reporting each of the neighborhood safety and built environment attributes was examined by demographic characteristics and walking domain. Wald tests were used to assess differences according to race/ethnicity, sex, metro status, region, and walking

domains. Linear trend tests were used to examine differences by age and education. Multivariate logistic regression models were used to examine the association between neighborhood safety and built environment attributes with each walking domain, adjusting for sex, age, race/ethnicity, education, metro status, and region.

All point estimates, 95% confidence interval estimates, multivariate analyses, trend tests on ordinal variables, and Wald tests for model terms were performed using R version 3.0.1 (R Foundation for Statistical Computing, Vienna, Austria) with the survey package (version 3.29). Statistical results were deemed significant at $P < .05$.

Results

Sample Characteristics

The analytic sample of 3951 comprised 1844 men and 2107 women (Table 1). The majority of the sample was non-Hispanic white metro residents. Those in the sample were more educated and older than U.S. adults, on average. The largest proportion was from the South.

Prevalence of Walking

Overall, 75% of U.S. adults were estimated to have walked either for transportation (54%) or for leisure (56%) in the past week in 2012 (Table 1). The majority of adults engaged in walking, for almost every group examined.

Both transportation and leisure walking showed an increasing linear trend in prevalence with education level. Transportation walking was lowest among non-Hispanic whites (prevalence 52%, significantly lower than the 60% among non-Hispanic blacks) and was more prevalent in metro areas (55%) than in nonmetro areas (49%). Leisure walking varied by region and was more prevalent among women (60%) than among men (52%).

Perception of Neighborhood Safety Attributes

The majority of respondents (except among those with less than high school education) reported no safety concern. The most commonly cited barrier to leisure walking was lack of sidewalks (22% overall), followed by speeding vehicles (18% overall) (Table 2). Of the options presented, crime was cited by the fewest—by 8% overall, 8% of leisure walkers, and 9% of transportation walkers. This finding was consistent across demographic groups, except for crime, which was cited by a higher proportion of those with less than high school education (14%) and non-Hispanic blacks (16%). The proportion reporting that dogs or other animals were a neighborhood safety attribute varied by every demographic characteristic considered. The proportion decreased ($P < .05$ for linear trend) with increasing education level, was higher among women (12%) than among men (8%), and higher at nonmetro locations (15%) than in metro locations (9%). Regional variation was seen in concerns about lack of sidewalks, speeding vehicles, and dogs or other animals.

Transportation walkers, and walkers in general, were 1.3 times as likely as nonwalkers to perceive speeding vehicles as a barrier to walking in their neighborhood, after adjustment for sex, race, education level, MSA status, and region (Table 3). No other significant association was seen between perception of neighborhood safety attributes and walking.

Perception of Neighborhood Built Environment Attributes

Overall, 36% of respondents reported that none of the built environment attributes described was present in their neighborhood (Table 4). The most commonly noted attribute, overall, was interesting things to look at while walking (32%); the least commonly noted was the presence of stores within walking distance (25%). The proportion reporting each of the built environment attributes increased ($P < .05$ for linear trend) with increasing education level, and was higher among metro residents than among nonmetro residents. The proportion reporting each attribute (except the presence of alternative routes to get to places) varied by race/ethnicity, but the pattern of variation differed by attribute. For example, the proportion reporting interesting things to look at ranged from 26% among non-Hispanic blacks up to 35% among non-Hispanic whites, whereas the proportion reporting transit stop within walking distance ranged from 36% among non-Hispanic blacks down to 24% among non-Hispanic whites.

Environmental attributes associated with leisure walking were many places to go to within walking distance of home (OR = 1.2 vs. nonwalkers), interesting things to look at while walking (OR = 1.6), and alternative routes to get to places (OR = 1.3) (Table 5). Environmental attributes associated with transportation walking were many places to go to within walking distance of home (OR = 2.2 vs. nonwalkers), transit stop within walking distance (OR = 1.8), interesting things to look at while walking (OR = 2.0), stores within walking distance (OR = 2.3), and alternative routes to get to places (OR = 1.7). All environmental attributes examined were associated with walking in general, with odds ratios (walking versus not walking, comparing presence and absence of attribute) ranging from OR = 1.4 for transit stop within walking distance to OR = 2.1 for interesting things to look at while walking.

Discussion

Our findings highlight that, among U.S. adults, walking, particularly for transportation, is associated with many built environment attributes. Perceptions of supportive built environment attributes showed variations with demographic characteristics (especially education level, race/ethnicity, and metro residence status). After adjusting for demographic variables, perception that the built environment was supportive of walking was associated with a greater likelihood of walking, especially for transportation. However, the majority of respondents reported no safety concern, and after adjustment for demographic variables, walking behavior was associated only with the perception of speeding vehicles.

Our findings support U.S. national goals and strategies for health. Creating social and physical environments that promote good health for all is 1 of 4 overarching goals of Healthy People 2020.³⁷ More recently, Step It Up! The Surgeon General's Call to Action to Promote Walking and Walkable Communities³⁸ has called out as key strategies the design of safe and easy places to walk at the community and street levels. Our findings are consistent with the recommendation that increasing access to places and spaces to walk may encourage increased walking among U.S. adults. While this study is unable to assess the relationship between the built environment and the perception of it, our findings suggest

that communities that are mixed-use, have richly connected street networks and provide easy access to transit options may be more walkable and encourage walking.

Our findings, while highlighting the popularity of walking across demographic subgroups, focus attention on differences in access to walkable environments among the subgroups. Walking holds promise as an ideal vehicle to promote physical activity because it is an acceptable physical activity that transcends demographic differences.⁴⁻⁸ The prevalence of walking, however, does differ by demographic characteristics.⁷ Our results show that the demographic subgroups with the lowest prevalence of walking also tend to have the lowest access to built environment attributes supportive of walking, paralleling the demographic patterns in prevalence of physical inactivity and of associated adverse health outcomes noted in other studies. Addressing the inequities in access to supportive built environments may be a strategy to address the observed disparities in levels of physical activity among U.S. adults. Our results add urgency and relevance to goals that promote walking and walkable communities for a healthier nation.³⁸

Our findings on the association of walking, by domain, with demographic characteristics are consistent with results from other studies.^{4,6,7,20} Across studies, the prevalence of walking is highest among the most highly educated, and transportation walking is more prevalent among younger adults and urban dwellers. Our estimates for the prevalence of transportation walking are, however, significantly higher than those from comparable studies.^{4,7} Transportation walking was assessed on 2012 Summer ConsumerStyles with a question that defined it as walking “to get some place,” but did not exclude walking for “fun, relaxation, or exercise” (which was assessed in the following question). We speculate that the inability to distinguish transportation walking from leisure walking on the survey may have led to over-reporting of transportation walking.

Comparing our findings to other studies for the association of walking with safety and built environment attributes is challenging because of the lack of standardized measures. On built environment attributes, our findings generally agree with the majority of results from previous studies: overall walking is associated with land use mix and population density (metro status is a proxy variable in our study), transportation walking is associated with built environment attributes of walkability (land use mix, population density, pedestrian infrastructure), and walking during leisure is weakly or not associated with most built environment attributes.^{13,14,16,29} On safety attributes, some of our findings are consistent, while others are less so. Similar to our study, other studies have shown an association between walking and traffic related concerns, particularly for transportation, among adults.^{12,17} Our findings on the direction of association between walking and perception of speeding vehicles may seem counterintuitive; because the results are based on a cross-sectional survey, we are unable to determine the cause of this. Studies on the association of walking with perception of crime have been mixed, but many of the differences could be explained by the different measures used.¹⁸⁻²³ Environmental factors such as lack of sidewalks and crosswalks, poor lighting, and streets with high-speed traffic compromise pedestrian safety,¹⁴⁻¹⁶ but the evidence on association between walking and these factors is mixed.¹⁷

This study has several limitations. First, the analysis is based on self-report and may be affected by recall and social-desirability biases. However, there is no reason to believe that the biases differ significantly among the demographic groups examined. Second, because this is a web-based survey of panelists who had responded to a previous survey and had a moderate response rate of 65%, we cannot dismiss concerns about selection and nonresponse biases. Third, this study uses a very sensitive definition of walking with a participation threshold of at least once a week for at least 10 minutes. However, in a sensitivity analysis where the threshold was changed to participation on at least 4 days a week, the associations reported in Tables 3 and 5 were found to be slightly weaker, while retaining the overall patterns. Fourth, the survey did not include geocoding precise enough for an objective assessment of the neighborhood environment, and we could not examine how much of the variation in perception of the environment is accounted for by variation in objective measures of the environment. Finally, associations found in this cross-sectional study may not be used to infer causality, especially because of the possibility of self-selection with respect to neighborhood of residence. However, a number of recent studies that are either quasi-experimental in design or have statistically adjusted for self-selection find that the built environment as well as safety concerns due to traffic may, indeed, influence walking and physical activity behavior.¹⁷

This study assesses the perception of environmental correlates of walking, based on a recent large nationwide survey. Other strengths of this study include a diverse sample large enough for multivariate and stratified analysis of perception of pedestrian safety and the built environment by demographic groups and walking domain among U.S. adults. The questions assessing perception of built environment attributes parallel those from the widely used Neighborhood Environmental Walkability Scale,^{35,36} which facilitates comparison of results across studies.

Promotion of walking through modifications to the neighborhood environment can be effective only if the associations between environmental attributes and walking are well understood, so that resources may be targeted for largest impact. We found that many attributes of the built environment and one of safety concerns are associated with walking among U.S. adults. We also found that subgroups with lower prevalence of walking tend to report lower access to the built environments supportive of walking. Transportation planners, public health practitioners, urban designers and policy makers shape our built environment; the findings may be useful in building healthy neighborhood environments and in addressing inequities in health.

Acknowledgments

The findings in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

References

1. U.S. Department of Health and Human Services. 2008 Physical Activity Guidelines for Americans. Washington DC: author; 2008.
2. World Cancer Research Fund, American Institute for Cancer Research. Food, Nutrition, Physical Activity, and the Prevention of Cancer: A Global Perspective. Washington, DC: AICR; 2007.

3. Blackwell DL, Lucas JW, Clarke TC. Summary health statistics for U.S. adults: National Health Interview Survey, 2012. *Vital Health Stat* 10. 2014;10(260):77–82.
4. Kruger J, Ham SA, Berrigan D, Ballard-Barbash R. Prevalence of transportation and leisure walking among U.S. adults. *Prev Med*. 2008;47(3):329–334. doi:10.1016/j.ypmed.2008.02.018 [PubMed: 18445507]
5. Simpson ME, Serdula M, Galuska DA, et al. Walking trends among U.S. adults: the Behavioral Risk Factor Surveillance System, 1987–2000. *Am J Prev Med*. 2003;25(2):95–100. doi:10.1016/S0749-3797(03)00112-0 [PubMed: 12880875]
6. Berrigan D, Carroll D, Fulton J, et al. Vital signs: walking among adults —United States, 2005 and 2010. *MMWR Morb Mortal Wkly Rep*. 2012;61(31):595–601. [PubMed: 22874838]
7. Paul P, Carlson SA, Carroll DD, Berrigan D, Fulton JE. Walking for transportation and leisure among U.S. adults—National Health Interview Survey 2010. *J Phys Act Health*. 2015;12(Suppl 1):S62–S69. doi:10.1123/jpah.2013-0519 [PubMed: 25133651]
8. Watson KB, Frederick GM, Harris CD, Carlson SA, Fulton JE. US adults' participation in specific activities, Behavioral Risk Factor Surveillance System—2011. *J Phys Act Health*. 2015;12(Suppl 1):S3–10. [PubMed: 25157914]
9. Heath GW, Brownson RC, Kruger J, Miles R, Powell KE, Ramsey LT. The effectiveness of urban design and land use and transport policies and practices to increase physical activity: a systematic review. *J Phys Act Health*. 2006;3(Suppl 1):S55–S76. doi:10.1123/jpah.3.s1.s55 [PubMed: 28834525]
10. Community Preventive Services Task Force. The Guide to Community Preventive Services website. Increasing Physical Activity: Environmental and Policy Approaches. <http://www.thecommunityguide.org/pa/environmental-policy/index.html>. Accessed November 5, 2014.
11. Saelens BE, Handy SL. Built environment correlates of walking: a review. *Med Sci Sports Exerc*. 2008;40(7, Suppl):S550–S566. doi:10.1249/MSS.0b013e31817c67a4 [PubMed: 18562973]
12. Owen N, Humpel N, Leslie E, Bauman A, Sallis JF. Understanding environmental influences on walking; review and research agenda. *Am J Prev Med*. 2004;27(1):67–76. doi:10.1016/j.amepre.2004.03.006 [PubMed: 15212778]
13. Sugiyama T, Neuhaus M, Cole R, Giles-Corti B, Owen N. Destination and route attributes associated with adults' walking: a review. *Med Sci Sports Exerc*. 2012;44(7):1275–1286. doi:10.1249/MSS.0b013e318247d286 [PubMed: 22217568]
14. Karsch HM, Hedlund JH, Tison J, Leaf WA. Review of Studies on Pedestrian and Bicyclist Safety, 1991–2007. Washington, DC: National Highway Traffic Safety Administration;2012. Report No. DOT HS 811 614.
15. Pollack KM, Bailey MM, Gielen AC, et al. Building safety into active living initiatives. *Prev Med*. 2014;69(Suppl 1):S102–S105. doi:10.1016/j.ypmed.2014.08.010 [PubMed: 25117526]
16. World Health Organization. Pedestrian Safety: A Road Safety Manual for Decision Makers and Practitioners. Geneva, Switzerland: World Health Organization; 2013.
17. McCormack GR, Shiell A. In search of causality: a systematic review of the relationship between the built environment and physical activity among adults. *Int J Behav Nutr Phys Act*. 2011;8:125. doi:10.1186/1479-5868-8-125 [PubMed: 22077952]
18. Bauman AE, Bull FC. Environmental Correlates of Physical Activity and Walking in Adults and Children: A Review of Reviews. London: National Institute of Health and Clinical Excellence; 2007.
19. Gomez JE, Johnson BA, Selva M, Sallis JF. Violent crime and outdoor physical activity among inner-city youth. *Prev Med*. 2004;39(5):876–881. doi:10.1016/j.ypmed.2004.03.019 [PubMed: 15475019]
20. Eyler AA, Brownson RC, Bacak SJ, Housemann RA. The epidemiology of walking for physical activity in the United States. *Med Sci Sports Exerc*. 2003;35(9):1529–1536. doi:10.1249/01.MSS.0000084622.39122.0C [PubMed: 12972873]
21. Evenson KR, Block R, Diez Roux AV, McGinn AP, Wen F, Rodriguez DA. Associations of adult physical activity with perceived safety and police-recorded crime: the Multi-ethnic Study of Atherosclerosis. *Int J Behav Nutr Phys Act*. 2012;9:146-5868-5869-5146. doi:10.1186/1479-5868-9-146

22. McDonald NC. The effect of objectively measured crime on walking in minority adults. *Am J Health Promot.* 2008;22(6):433–436. doi:10.4278/ajhp.22.6.433 [PubMed: 18677884]
23. Mason P, Kearns A, Livingston M. “Safe Going”: the influence of crime rates and perceived crime and safety on walking in deprived neighbourhoods. *Soc Sci Med.* 2013;91:15–24. doi:10.1016/j.socscimed.2013.04.011 [PubMed: 23849234]
24. Caspi CE, Kawachi I, Subramanian SV, Tucker-Seeley R, Sorensen G. The social environment and walking behavior among low-income housing residents. *Soc Sci Med.* 1982;2013(80):76–84.
25. Nagel CL, Carlson NE, Bosworth M, Michael YL. The relation between neighborhood built environment and walking activity among older adults. *Am J Epidemiol.* 2008;168(4):461–468. doi:10.1093/aje/kwn158 [PubMed: 18567638]
26. Addy CL, Wilson DK, Kirtland KA, Ainsworth BE, Sharpe P, Kimsey D. Associations of perceived social and physical environmental supports with physical activity and walking behavior. *Am J Public Health.* 2004;94(3):440–443. doi:10.2105/AJPH.94.3.440 [PubMed: 14998810]
27. Hoehner CM, Brennan Ramirez LK, Elliott MB, Handy SL, Brownson RC. Perceived and objective environmental measures and physical activity among urban adults. *Am J Prev Med.* 2005;28(Suppl 2):105–116. doi:10.1016/j.amepre.2004.10.023 [PubMed: 15694518]
28. Granner ML, Sharpe PA, Hutto B, Wilcox S, Addy CL. Perceived individual, social, and environmental factors for physical activity and walking. *J Phys Act Health.* 2007;4(3):278–293. doi:10.1123/jpah.4.3.278 [PubMed: 17846457]
29. McGinn AP, Evenson KR, Herring AH, Huston SL, Rodriguez DA. Exploring associations between physical activity and perceived and objective measures of the built environment. *J Urban Health.* 2007;84(2):162–184. [PubMed: 17273926]
30. Watson KB, Carlson SA, Humbert-Rico T, Carroll DD, Fulton JE. Walking for Transportation: What do U.S. Adults Think is a Reasonable Distance and Time? *J Phys Act Health.* 2015;12(Suppl 1):S53–S61. doi:10.1123/jpah.2014-0062 [PubMed: 25158016]
31. National Center for Health Statistics. 2010 National Health Interview Survey (NHIS)—Cancer Control Supplement (CCS). ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Survey_Questionnaires/NHIS/2010/English/qcancer.pdf. Accessed May 12, 2015.
32. National Center for Health Statistics. 2015 National Health Interview Survey (NHIS)—Cancer Control Supplement (CCS). ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Survey_Questionnaires/NHIS/2015/english/qcancer.pdf. Accessed July 7, 2015.
33. U.S. Census Bureau. About Metropolitan and Micropolitan Statistical Areas. <http://www.census.gov/population/metro/about/>. Accessed October 5, 2015.
34. U.S. Census Bureau. 2010 Geographic Terms and Concepts—Census Divisions and Census Regions. https://www.census.gov/geo/reference/gtc/gtc_census_divreg.html. Accessed October 5, 2015.
35. Cerin E, Conway TL, Saelens BE, Frank LD, Sallis JF. Cross-validation of the factorial structure of the Neighborhood Environment Walkability Scale (NEWS) and its abbreviated form (NEWS-A). *Int J Behav Nutr Phys Act.* 2009;6:32. doi:10.1186/1479-5868-6-32 [PubMed: 19508724]
36. Cerin E, Saelens BE, Sallis JF, Frank LD. Neighborhood Environment Walkability Scale: validity and development of a short form. *Med Sci Sports Exerc.* 2006;38(9):1682–1691. doi:10.1249/01.mss.0000227639.83607.4d [PubMed: 16960531]
37. U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion. Healthy People 2020. <http://www.healthypeople.gov/2020/About-Healthy-People>. Accessed October 10, 2014.
38. U.S. Department of Health and Human Services. Step It Up! Washington, DC: The Surgeon General’s Call to Action to Promote Walking and Walkable Communities; 2015.

Sample Characteristics and Prevalence of Walking, by Domain and Selected Characteristics—Summer ConsumerStyles 2012

Table 1

Characteristic	Sample counts	Population weights (%) (95% CI)	Prevalence (%) (95% CI)		
			Any walking	Transportation walking	Leisure walking
Total	3951	100.0	74.6 (74.6, 74.6)	54.2 (54.2, 54.3)	56.3 (56.3, 56.3)
Age (years)					
18–34	821	30.4 (28.3, 32.5)	76.8 (73.1, 80.4)	58.6 (54.3, 62.9)	54.7 (50.4, 59.1)
35–49	1172	25.6 (23.9, 27.4)	73.8 (70.2, 77.4)	53.6 (49.6, 57.6)	57.5 (53.5, 61.4)
50–64	1195	26.5 (24.7, 28.3)	74.5 (71.2, 77.9)	52.8 (49.0, 56.7)	58.7 (55.0, 62.5)
65+	763	17.6 (16.1, 19.1)	72.2 (68.0, 76.4)	49.8 (45.1, 54.5)	53.6 (48.9, 58.3)
Education level					
Less than high school	238	12.4 (10.8, 14.2)	70.0 (63.0, 77.0)	54.7 (47.2, 62.2)	48.9 (41.4, 56.5)
High school	1001	29.7 (27.8, 31.8)	69.8 (66.1, 73.4)	47.0 (42.9, 51.0)	52.9 (48.8, 56.9)
Some college	1262	28.8 (27.0, 30.7)	77.2 (74.3, 80.0)	58.4 (54.9, 62.0)	56.3 (52.7, 59.9)
College graduate	1450	29.1 (27.3, 30.9)	79.1 (76.1, 82.0)	57.4 (53.8, 60.9)	62.9 (59.5, 66.4)
Race/ethnicity					
White, non-Hispanic	2930	67.6 (65.4, 69.7)	73.8 (71.7, 76.0)	52.1 (49.7, 54.5)	55.7 (53.3, 58.1)
Black, non-Hispanic	385	11.3 (9.9, 12.8)	75.5 (69.5, 81.6)	59.6 (52.8, 66.4)	58.9 (52.1, 65.7)
Hispanic	403	13.8 (12.2, 15.5)	77.5 (72.2, 82.8)	56.2 (49.7, 62.6)	57.0 (50.6, 63.4)
Other	233	7.3 (6.1, 8.7)	75.1 (67.3, 82.9)	62.3 (53.5, 71.1)	56.5 (47.5, 65.6)
Sex					
Male	1844	48.6 (46.5, 50.7)	73.1 (70.4, 75.8)	56.2 (53.1, 59.3)	52.0 (48.9, 55.1)
Female	2107	51.4 (49.3, 53.5)	76.1 (73.6, 78.6)	52.4 (49.5, 55.3)	60.4 (57.5, 63.2)
MSA status					
Nonmetro	591	16.0 (14.5, 17.7)	72.6 (67.9, 77.3)	48.6 (43.3, 54.0)	53.4 (48.1, 58.7)
Metro	3360	84.0 (82.3, 85.5)	75.0 (73.0, 77.0)	55.3 (53.0, 57.6)	56.8 (54.5, 59.1)
Region					
Northeast	726	18.2 (16.6, 19.8)	73.3 (68.8, 77.7)	58.6 (53.8, 63.4)	53.4 (48.5, 58.4)
Midwest	994	21.7 (20.0, 23.4)	76.2 (72.6, 79.8)	54.8 (50.5, 59.0)	57.0 (52.7, 61.2)
South	1353	37.1 (35.1, 39.2)	69.5 (66.2, 72.8)	46.3 (42.7, 49.8)	53.5 (50.0, 57.0)
West	878	23.1 (21.3, 24.9)	82.4 (79.1, 85.8)	63.2 (58.7, 67.6)	62.4 (58.0, 66.8)

Note: Rows of boldface numbers are significantly ($P < .05$) different within the block. Prevalence of transportation walking for age group and boldfaced blocks for education level are also significant for linear trend.

Abbreviations: MSA, Metropolitan Statistical Area.

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 2 Prevalence of Perception of Neighborhood Safety Attributes, by Selected Characteristics—Summer ConsumerStyles 2012

Characteristic	None	No sidewalks	Speeding vehicles	Poorly lit	Dogs	No crosswalks	Crime
Total	59.2 (57.1, 61.3)	22.0 (20.2, 23.7)	18.1 (16.4, 19.7)	11.1 (9.7, 12.4)	10.1 (8.8, 11.4)	9.6 (8.4, 10.9)	8.0 (6.8, 9.3)
Age (years)							
18–34	58.3 (54.0, 62.6)	22.2 (18.6, 25.7)	18.3 (14.8, 21.7)	13.6 (10.7, 16.5)	6.6 (4.7, 8.6)	11.8 (9.0, 14.6)	8.7 (6.1, 11.3)
35–49	56.5 (52.5, 60.5)	21.4 (18.1, 24.6)	19.4 (16.3, 22.5)	13.3 (10.5, 16.1)	12.1 (9.4, 14.9)	9.0 (6.8, 11.1)	8.2 (5.9, 10.4)
50–64	60.7 (57.0, 64.5)	21.1 (18.0, 24.2)	15.7 (13.0, 18.4)	9.9 (7.7, 12.1)	11.9 (9.5, 14.4)	8.7 (6.6, 10.7)	8.3 (6.0, 10.5)
65+	62.5 (57.9, 67.1)	23.8 (19.8, 27.8)	19.3 (15.4, 23.2)	5.2 (3.0, 7.3)	10.4 (7.2, 13.6)	8.3 (5.5, 11.2)	6.3 (3.7, 9.0)
Education level							
Less than high school	49.1 (41.6, 56.7)	22.9 (16.5, 29.2)	20.8 (14.7, 26.9)	14.9 (9.4, 20.4)	16.7 (11.1, 22.2)	10.1 (5.7, 14.5)	13.9 (8.4, 19.5)
High school	58.5 (54.5, 62.5)	21.6 (18.3, 24.9)	20.1 (16.8, 23.3)	9.5 (7.2, 11.8)	11.4 (8.9, 13.8)	9.7 (7.3, 12.1)	8.4 (6.2, 10.6)
Some college	59.8 (56.3, 63.4)	22.5 (19.5, 25.5)	18.4 (15.6, 21.3)	12.1 (9.7, 14.4)	8.9 (6.9, 11.0)	10.6 (8.3, 13.0)	8.7 (6.4, 10.9)
College graduate	63.6 (60.2, 67.0)	21.4 (18.5, 24.2)	14.5 (12.2, 16.8)	10.1 (7.9, 12.3)	7.2 (5.3, 9.0)	8.3 (6.4, 10.3)	4.5 (3.2, 5.8)
Race/ethnicity							
White, non-Hispanic	60.0 (57.6, 62.3)	23.1 (21.1, 25.2)	19.1 (17.2, 21.1)	10.0 (8.5, 11.4)	8.5 (7.2, 9.9)	9.3 (7.8, 10.7)	6.1 (4.8, 7.4)
Black, non-Hispanic	54.2 (47.4, 61.1)	18.3 (13.2, 23.5)	14.2 (9.3, 19.1)	12.1 (7.5, 16.7)	19.3 (13.7, 24.9)	11.3 (6.9, 15.6)	15.7 (10.7, 20.6)
Hispanic	62.0 (55.8, 68.2)	17.7 (13.0, 22.3)	17.2 (12.7, 21.7)	14.9 (10.5, 19.3)	10.0 (6.5, 13.5)	9.1 (5.9, 12.4)	9.1 (5.7, 12.5)
Other	54.7 (45.5, 63.8)	25.0 (16.9, 33.0)	15.8 (9.1, 22.5)	12.5 (6.3, 18.8)	10.5 (5.1, 15.9)	11.3 (5.5, 17.0)	12.1 (5.3, 18.8)
Sex							
Male	62.5 (59.5, 65.5)	20.4 (17.9, 22.9)	17.2 (14.8, 19.5)	10.8 (8.8, 12.7)	8.1 (6.4, 9.8)	9.6 (7.7, 11.5)	7.3 (5.6, 9.0)
Female	56.1 (53.2, 59.0)	23.5 (21.0, 25.9)	18.9 (16.6, 21.2)	11.4 (9.5, 13.2)	12.0 (10.1, 13.9)	9.7 (8.0, 11.4)	8.7 (7.0, 10.5)
MSA status							
Nonmetro	53.1 (47.7, 58.4)	27.6 (22.8, 32.4)	20.2 (16.0, 24.4)	11.0 (7.7, 14.4)	14.6 (10.9, 18.3)	12.4 (8.6, 16.2)	6.3 (3.3, 9.2)
Metro	60.4 (58.1, 62.7)	20.9 (19.0, 22.7)	17.7 (15.9, 19.4)	11.1 (9.6, 12.5)	9.2 (7.9, 10.6)	9.1 (7.8, 10.4)	8.4 (7.0, 9.7)
Region							
Northeast	57.7 (52.8, 62.6)	24.7 (20.6, 28.9)	21.9 (17.7, 26.0)	10.3 (7.1, 13.5)	5.2 (2.8, 7.6)	10.8 (7.8, 13.8)	6.9 (4.2, 9.5)
Midwest	62.4 (58.3, 66.6)	20.4 (17.0, 23.9)	14.3 (11.4, 17.3)	11.9 (8.8, 14.9)	8.4 (5.8, 11.0)	8.6 (6.0, 11.3)	8.4 (5.7, 11.1)
South	54.8 (51.3, 58.3)	24.8 (21.8, 27.8)	19.2 (16.4, 21.9)	11.9 (9.7, 14.0)	14.4 (12.0, 16.8)	10.2 (8.1, 12.2)	7.7 (5.7, 9.7)
West	64.5 (60.1, 68.9)	16.6 (13.3, 20.0)	16.8 (13.3, 20.3)	9.7 (7.1, 12.3)	8.7 (6.3, 11.0)	8.8 (6.2, 11.5)	9.1 (6.4, 11.7)
Walking domain							

Characteristic	None	No sidewalks	Speeding vehicles	Poorly lit	Dogs	No crosswalks	Crime
Nonwalkers	62.2 (58.1, 66.4)	20.9 (17.5, 24.4)	15.9 (12.9, 19.0)	11.2 (8.5, 13.9)	10.8 (8.2, 13.5)	9.2 (6.9, 11.5)	9.1 (6.3, 11.8)
Walkers	58.2 (55.8, 60.6)	22.3 (20.3, 24.3)	18.8 (16.9, 20.7)	11.0 (9.5, 12.6)	9.9 (8.4, 11.3)	9.8 (8.3, 11.3)	7.7 (6.3, 9.0)
Transportation	58.6 (55.8, 61.5)	21.2 (18.9, 23.6)	19.4 (17.1, 21.7)	10.7 (8.9, 12.5)	9.0 (7.4, 10.6)	10.0 (8.2, 11.8)	8.7 (7.0, 10.4)
Leisure	57.9 (55.1, 60.7)	22.9 (20.5, 25.2)	18.4 (16.2, 20.5)	11.6 (9.8, 13.4)	10.6 (8.8, 12.3)	9.2 (7.6, 10.9)	7.9 (6.3, 9.4)

Note. Figures in parentheses are 95% confidence intervals. Rows of boldface numbers are significantly ($P < .05$) different within the boldfaced block. Boldfaced blocks for ordinal variables age and education level are also significant for linear trend. Differences among walking domains not tested.

Abbreviations: MSA, Metropolitan Statistical Area.

Table 3
Odds Ratios (Walking Versus not Walking) by Domain, by Perception of Neighborhood Safety Attributes—Summer ConsumerStyles 2012

Walking domain	Safety attributes						
	No sidewalk	No crosswalk	Speeding vehicles	Poorly lit	Crime	Dogs	
Walkers							
Odds ratio	1.08 (0.86, 1.37)	1.08 (0.78, 1.49)	1.22 (0.94, 1.59)	0.98 (0.72, 1.34)	0.83 (0.57, 1.23)	0.90 (0.66, 1.24)	
Adjusted odds ratio	1.15 (0.91, 1.46)	1.09 (0.79, 1.51)	1.31 (1.01, 1.70)	0.98 (0.71, 1.34)	0.83 (0.56, 1.21)	0.98 (0.70, 1.38)	
Transportation walkers							
Odds ratio	0.91 (0.74, 1.12)	1.09 (0.82, 1.46)	1.22 (0.98, 1.52)	0.92 (0.70, 1.21)	1.22 (0.87, 1.72)	0.77 (0.58, 1.01)	
Adjusted odds ratio	0.96 (0.78, 1.19)	1.08 (0.81, 1.44)	1.29 (1.03, 1.62)	0.89 (0.67, 1.18)	1.16 (0.82, 1.64)	0.85 (0.63, 1.14)	
Leisure walkers							
Odds ratio	1.13 (0.92, 1.39)	0.90 (0.67, 1.20)	1.05 (0.84, 1.31)	1.13 (0.86, 1.49)	0.95 (0.68, 1.34)	1.13 (0.85, 1.50)	
Adjusted odds ratio	1.17 (0.95, 1.44)	0.92 (0.69, 1.24)	1.10 (0.88, 1.38)	1.15 (0.87, 1.53)	0.97 (0.69, 1.35)	1.14 (0.85, 1.54)	

Note. Figures in parentheses are 95% confidence intervals. Significant odds ratios in boldface. Adjusted models include sex, age-group, race, education level, MSA-status and region.

Abbreviations: MSA, Metropolitan Statistical Area.

Table 4
Prevalence of Perception of Neighborhood Built Environment Attributes, by Selected Characteristics—Summer ConsumerStyles 2012

Characteristic	None	Interesting things	Alternative routes	Many places	Transit stop	Stores
Total	35.6 (33.5, 37.6)	32.4 (30.5, 34.4)	30.8 (28.9, 32.8)	29.1 (27.2, 31.0)	26.4 (24.5, 28.3)	25.5 (23.6, 27.3)
Age (years)						
18–34	34.2 (30.1, 38.4)	30.7 (26.7, 34.7)	34.0 (29.9, 38.1)	30.1 (26.1, 34.1)	28.3 (24.4, 32.3)	28.8 (24.8, 32.8)
35–49	35.5 (31.6, 39.3)	31.9 (28.2, 35.6)	32.1 (28.4, 35.8)	30.7 (27.0, 34.3)	28.0 (24.3, 31.7)	27.2 (23.7, 30.8)
50–64	35.3 (31.6, 39.0)	34.3 (30.7, 38.0)	28.0 (24.6, 31.3)	29.2 (25.8, 32.7)	26.1 (22.8, 29.5)	22.6 (19.4, 25.8)
65+	38.6 (34.0, 43.1)	33.2 (29.0, 37.5)	27.9 (23.8, 31.9)	25.0 (21.1, 28.9)	21.3 (17.5, 25.1)	21.5 (17.7, 25.3)
Education level						
Less than high school	42.2 (34.8, 49.7)	25.5 (18.8, 32.1)	24.0 (17.5, 30.5)	22.5 (16.2, 28.8)	25.8 (19.0, 32.5)	24.0 (17.6, 30.4)
High school	45.3 (41.3, 49.4)	24.4 (20.9, 27.8)	23.8 (20.4, 27.2)	23.5 (20.1, 26.8)	20.1 (16.9, 23.3)	20.2 (17.0, 23.5)
Some college	30.0 (26.8, 33.2)	34.6 (31.1, 38.1)	35.4 (31.9, 38.9)	31.2 (27.8, 34.5)	28.8 (25.4, 32.2)	27.0 (23.7, 30.4)
College graduate	28.3 (25.2, 31.5)	41.5 (38.0, 45.0)	36.4 (33.0, 39.8)	35.7 (32.3, 39.2)	30.8 (27.4, 34.2)	29.9 (26.6, 33.3)
Race/ethnicity						
White, non-Hispanic	37.6 (35.2, 39.9)	34.7 (32.4, 37.0)	29.6 (27.5, 31.8)	27.5 (25.4, 29.6)	23.5 (21.5, 25.6)	23.4 (21.4, 25.4)
Black, non-Hispanic	26.7 (20.7, 32.8)	26.4 (20.6, 32.3)	36.0 (29.3, 42.6)	32.5 (26.2, 38.7)	36.1 (29.6, 42.7)	30.1 (23.7, 36.6)
Hispanic	33.2 (27.1, 39.2)	27.6 (21.8, 33.4)	30.0 (24.1, 35.8)	28.7 (23.1, 34.3)	31.9 (25.8, 38.1)	26.7 (21.0, 32.4)
Other	35.5 (26.7, 44.4)	29.6 (21.2, 38.0)	35.5 (26.9, 44.2)	39.7 (30.8, 48.7)	27.9 (19.7, 36.0)	35.3 (26.6, 44.0)
Sex						
Male	35.7 (32.7, 38.7)	31.2 (28.4, 34.0)	29.4 (26.6, 32.1)	31.1 (28.3, 34.0)	26.1 (23.4, 28.9)	26.8 (24.1, 29.5)
Female	35.5 (32.7, 38.3)	33.6 (30.8, 36.3)	32.2 (29.5, 34.9)	27.2 (24.7, 29.8)	26.7 (24.0, 29.3)	24.2 (21.6, 26.8)
MSA status						
Nonmetro	51.3 (46.0, 56.7)	25.4 (20.9, 29.9)	18.6 (14.7, 22.6)	15.9 (12.2, 19.7)	5.7 (3.3, 8.0)	14.7 (11.1, 18.4)
Metro	32.6 (30.4, 34.7)	33.8 (31.6, 35.9)	33.2 (31.0, 35.3)	31.6 (29.5, 33.8)	30.4 (28.2, 32.5)	27.5 (25.4, 29.6)
Region						
Northeast	31.7 (27.2, 36.3)	35.2 (30.5, 39.9)	36.5 (31.7, 41.3)	34.6 (30.0, 39.3)	34.6 (29.7, 39.4)	30.1 (25.5, 34.8)
Midwest	34.5 (30.5, 38.6)	32.6 (28.7, 36.4)	32.1 (28.1, 36.0)	26.8 (23.1, 30.5)	21.7 (18.1, 25.3)	22.7 (19.1, 26.3)
South	46.3 (42.7, 49.8)	27.2 (24.1, 30.4)	23.6 (20.6, 26.5)	21.3 (18.5, 24.1)	17.0 (14.4, 19.7)	20.0 (17.1, 22.8)
West	22.4 (18.5, 26.3)	38.5 (34.0, 42.9)	36.9 (32.5, 41.2)	39.6 (35.1, 44.1)	39.5 (35.0, 44.0)	33.3 (29.0, 37.6)
Walking domain						

Characteristic	None	Interesting things	Alternative routes	Many places	Transit stop	Stores
Nonwalkers	49.1 (44.9, 53.3)	20.3 (17.2, 23.5)	21.6 (18.2, 25.0)	20.4 (17.1, 23.7)	20.3 (16.9, 23.7)	16.3 (13.3, 19.3)
Walkers	31.0 (28.7, 33.3)	36.5 (34.2, 38.9)	34.0 (31.7, 36.3)	32.1 (29.8, 34.4)	28.5 (26.3, 30.8)	28.6 (26.4, 30.9)
Transportation	26.7 (24.2, 29.2)	39.3 (36.5, 42.1)	37.0 (34.2, 39.7)	37.2 (34.4, 40.0)	33.0 (30.2, 35.7)	33.3 (30.6, 36.1)
Leisure	30.6 (28.0, 33.2)	37.5 (34.8, 40.2)	34.0 (31.4, 36.6)	31.4 (28.9, 34.0)	26.5 (24.0, 29.0)	26.9 (24.4, 29.4)

Note. Figures in parentheses are 95% confidence intervals. Rows of boldface numbers are significantly ($P < .05$) different within the boldfaced block. Boldfaced blocks for ordinal variables age and education level are also significant for linear trend. There is significant linear trend with age for the variables Alternative routes and Transit stop. Differences among walking domains not tested.

Abbreviations: MSA, Metropolitan Statistical Area.

Odds Ratios (Walking Versus not Walking) by Domain, by Perception of Neighborhood Built Environment Attributes—Summer ConsumerStyles 2012

Table 5

Walking domain	Built environment attribute					
	Many places	Transit stop	Interesting things	Stores	Alternative routes	
Walkers						
Odds ratio	1.85 (1.47, 2.32)	1.57 (1.24, 1.99)	2.25 (1.81, 2.81)	2.06 (1.61, 2.64)	1.87 (1.49, 2.34)	
Adjusted odds ratio	1.68 (1.33, 2.13)	1.37 (1.07, 1.76)	2.10 (1.68, 2.64)	1.92 (1.49, 2.47)	1.70 (1.35, 2.13)	
Transportation walkers						
Odds ratio	2.43 (2.01, 2.95)	2.14 (1.75, 2.62)	2.03 (1.68, 2.43)	2.59 (2.10, 3.19)	1.90 (1.58, 2.29)	
Adjusted odds ratio	2.17 (1.79, 2.64)	1.85 (1.50, 2.27)	1.96 (1.63, 2.37)	2.33 (1.88, 2.88)	1.71 (1.41, 2.06)	
Leisure walkers						
Odds ratio	1.29 (1.07, 1.56)	1.01 (0.83, 1.23)	1.72 (1.43, 2.07)	1.19 (0.97, 1.45)	1.41 (1.17, 1.70)	
Adjusted odds ratio	1.22 (1.00, 1.48)	0.90 (0.73, 1.10)	1.61 (1.33, 1.95)	1.14 (0.92, 1.39)	1.32 (1.09, 1.60)	

Note. Figures in parentheses are 95% confidence intervals. Significant odds ratios in boldface. Adjusted models include sex, age-group, race, education level, MSA-status and region.

Abbreviations: MSA, Metropolitan Statistical Area.