



HHS Public Access

Author manuscript

J Phys Act Health. Author manuscript; available in PMC 2016 June 16.

Published in final edited form as:

J Phys Act Health. ; 12(0 1): S53–S61. doi:10.1123/jpah.2014-0062.

Walking for Transportation: What do U.S. Adults Think is a Reasonable Distance and Time?

Kathleen B Watson, Susan A Carlson, Tiffany Humbert-Rico, Dianna D. Carroll, and Janet E Fulton

The authors are with the Physical Activity and Health Branch, Division of Nutrition, Physical Activity, and Obesity, Centers for Disease Control and Prevention, Atlanta, GA; the Division of Human Development and Disability, Centers for Disease Control and Prevention, Atlanta, Georgia, and the U.S. Public Health Service Commissioned Corps, Atlanta, GA

Abstract

Background—Less than one-third of U.S. adults walk for transportation. Public health strategies to increase transportation walking would benefit from knowing what adults think is a reasonable distance to walk. Our purpose was to determine (1) what adults think is a reasonable distance and amount of time to walk and (2) whether there were differences in minutes spent transportation walking by what adults think is reasonable.

Methods—Analyses used a cross-sectional nationwide adult sample (n=3,653) participating in the 2010 Summer ConsumerStyles mail survey.

Results—Most adults (>90%) think transportation walking is reasonable. However, less than half (43%) think walking a mile or more or for 20 minutes or more is reasonable. What adults think is reasonable is similar across most demographic subgroups, except for older adults (> 65 years) who think shorter distances and times are reasonable. Trend analysis that adjust for demographic characteristics indicates adults who think longer distances and times are reasonable walk more.

Conclusions—Walking for short distances is acceptable to most U.S. adults. Public health programs designed to encourage longer distance trips may wish to improve supports for transportation walking to make walking longer distances seem easier and more acceptable to most U.S. adults.

Introduction

Walking is one way to increase physical activity¹ regardless of whether the purpose for walking is for transportation or leisure. However, less than one-third of adults walk for transportation.² Walking (and cycling) for transportation purposes is associated with higher

Address correspondence to: Kathleen B Watson, 4770 Buford Highway NE, Mailstop F-77, Division of Nutrition, Physical Activity, and Obesity, Centers for Disease Control and Prevention, Atlanta, GA, 30341-3724. Phone: 770-488-5489. kwatson@cdc.gov..

¹Porter Novelli Public Services is a public relations firm with offices at 1909 K Street NW, Washington, DC, 20006

²Synovate, Inc. was a global market research firm that has since been acquired by a larger firm, Ipsos.

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

general levels of physical activity³ and walking (and cycling) over longer periods of time and distances have shown positive effects on health.⁴

Research on walking for transportation has been conducted in the transportation, planning, and public health fields. Much of this research has focused on social and physical environmental factors (i.e., social support or street connectivity)⁵⁻⁸ and has provided important information to implement environmental strategies to increase transportation walking. An acceptable walking distance has usually been operationalized as a distance between a quarter- and a half-mile⁹⁻¹² or between 5 to 10 minutes.^{9,10} Decisions regarding acceptable or reasonable walking distances have been influenced, in part, by how much adults walk for transportation.¹² In 1990, the average trip length for walking among U.S. adults was 0.64 miles.¹³ Since then, there has been little change in average trip lengths from 2001 (0.62 miles) and 2009 (0.61 miles).¹⁴

Little is known, however, on adults' opinions about how long or how far to walk for transportation is reasonable.^{15,16} In a U.S. suburban area, approximately half of adults thought walking more than a half-mile was reasonable and few adults (4%) thought walking only one block was reasonable.¹⁵ A state-based study found 45% of adults thought it would be reasonable to walk more than one mile.¹⁶ These studies, however, did not examine whether what adults think is a reasonable distance was different among demographic subgroups. In addition, these studies did not examine what adults think is a reasonable amount of time to walk. Furthermore, generalizing these findings to a nationwide population may be difficult.

Determining what adults think is a reasonable distance and amount of time to walk for transportation could help inform programming efforts to increase physical activity by designing walking programs which appeal to a broad audience. The information may also be used to identify the need for tailoring strategies to specific subgroups, as well as, to improve communication messages that promote walking for transportation. For example, if most adults think short walking trips, such as walking one-half mile, is reasonable, then designing a program which focuses on short trips may be more successful. Therefore, using a nationwide sample of adults, this study sought to determine what adults think is a reasonable distance and amount of time to walk for transportation and whether there are demographic differences in what adults think is reasonable. This study also sought to examine the relationship between what adults think is reasonable and how much time adults spend walking for transportation. Consistent with health behavior theory,¹⁷ this study hypothesized there are some demographic differences in what adults think is reasonable. In addition, this study hypothesized adults who think they can reasonably walk longer distances and periods of time will spend more time walking for transportation.

Methods

Survey and Analytic Sample

The data used in this research came from Porter Novelli's^a 2010 ConsumerStyles database. Each year, the *ConsumerStyles* database is built from a series of mail panel surveys that

gather insights about American consumers, including information about their health attitudes and behaviors.

The main survey, *Spring ConsumerStyles* was fielded to a consumer mail panel run by Synovate^b in April and May of 2010. Stratified random sampling, with 60 sampling groups, was used to generate a list of 20,000 potential adult respondents (age 18 and older) who received the *Spring ConsumerStyles* survey. The main sample was stratified (or balanced) on region, household income, population density, age, and household size to create a nationally- representative sample. A total of 10,328 respondents completed the *Spring ConsumerStyles* survey.

The *Summer ConsumerStyles* survey was sent to a random sample of 6,255. A total of 4,184 *Spring ConsumerStyles* surveys were returned (a response rate of 66.9%). Participation was voluntary. Those who completed the survey received reward points worth approximately \$5 and were and were entered into a sweepstakes with a first place prize of \$1,000 and twenty second-place prizes of \$50.

A panel demographic post-stratification weight was used to address sources of sampling and non-sampling error. The resulting data were weighted to match the prior year U.S. Current Population Survey proportions for age, sex, race/ethnicity, income, and household size. Research comparing survey results from samples drawn from Synovate's panel with results from national random samples using Random Digit Dial (RDD) show very close agreement.¹⁸⁻²⁰ The analytic sample consisted of 3,653 adults (87.3% of respondents). Participants were excluded if missing information on demographic characteristics (n=138), perceptions of reasonable distance and time or walking behavior (n=322), or chronic condition and disability information (n=71) (Figure 1). There were no significant differences in characteristics between participants included and excluded from the analytic sample.

The Centers for Disease Control and Prevention licensed the results of the 2010 *Summer ConsumerStyles* survey post-collection from Porter Novelli, and analysis of these data was exempt from institutional review board approval because personal identifiers were not included in the data file.

Measures

Demographic characteristics—Categorical variables were used for sex, age (18-44, 45-64, >64 years), race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic), education level (no college degree, college degree), chronic condition or disability (yes, no), region (Northeast, Midwest, South, West), and body mass index (BMI) category. BMI was calculated from self-reported height and weight, and was classified into the following 3 categories: under or normal weight (BMI < 25.0 kg/m²), overweight (BMI 25.0 to 29.9 kg/m²), and obese (BMI ≥ 30.0 kg/m²).²¹

Walking for transportation—Before being asked the survey questions on walking for transportation, respondents were provided with the following description: “The next set of questions ask about walking as a way to get from place to place - for example, to get to or from work/school, for shopping or running errands, or to get to other places.”

Minutes spent walking for transportation—The walking for transportation questions were selected from the National Health Interview Survey and were modified slightly to ask about usual week and not on past week (http://www.cdc.gov/nchs/nhis/nhis_questionnaires.htm). The respondents were asked if they walk for at least 10 minutes at a time to get from place to place in a usual week. If yes, they were asked how many days per week they walk and how many minutes per day they walk. The days per week was multiplied by the minutes per day to obtain the weekly minutes spent walking for transportation (place to place). Test-retest reliability of these questions has previously been assessed using a two-week period ($r=0.31$).²² Validity of these questions has previously been assessed with an accelerometer ($r=0.33$).²²

Reasonable distance and time—Respondents were asked “In good weather, HOW FAR do you think is reasonable for you to walk as a way to get from place to place, if you had the time and didn’t need to transport anything? Response options for a reasonable distance were as follows: none, less than 0.5 mile, 0.5 mile - 1 mile, 1 mile - less than 1.5 miles, 1.5 miles - less than 2 miles, and 2 or more miles. Respondents were then asked “In good weather, HOW MUCH TIME do you think is reasonable for you to walk as a way to get from place to place, if you had the time and didn’t need to transport anything? Response options for a reasonable amount of time were as follows: none, 1-5 minutes, 6-10 minutes, 11-20 minutes, 21-30 minutes, and 31 or more minutes. Reliability of these questions has not been assessed. Using data from this study, validity of these questions was assessed using correlational methods for ordinal data.^{23,24} The associations between meeting national guidelines and reasonable distance ($r_{\text{gamma}}=0.38$) and time ($r_{\text{gamma}}=0.33$) were moderate.

Statistical Analyses—We examined the frequency distribution (percentages and corresponding standard errors) of the responses to perceptions of reasonable distance and time to walk for transportation, overall, and by demographic characteristics (i.e., sex, age, race/ethnicity, BMI category, education level, chronic condition or disability, region). We used chi-square tests of associations to determine whether response profiles significantly differed by demographic subgroups. For characteristics with significant global associations ($P < 0.05$), pairwise comparisons were performed to identify specifically where significant differences occurred. The significance level for pairwise comparisons was adjusted using Bonferroni’s method for multiple comparisons. To better understand the overall response profiles, a graph of the cumulative percentages for what adults thought was a reasonable distance and amount of time to walk was created.

Linear and quadratic trends were used to determine whether there were differences in the amount of time adults spent walking for transportation by what they thought was a reasonable distance and amount of time to walk. The trends were tested using orthogonal polynomial contrasts to determine whether time spent walking per week was significantly greater for adults who think longer distances and times to walk as reasonable. The trend tests were adjusted for demographic characteristics (sex, age group, race/ethnicity, BMI, education, chronic condition or disability, and region). All data analyses were conducted with SUDAAN version 9.0 software (Research Triangle Institute, ResearchTriangle Park, NC) to account for the survey weights.

Results

The majority of participants in the analytic sample were non-Hispanic whites, were 18-44 years of age, and had at least some college (Table 1). The distribution of age groups for the unweighted sample differed slightly from that of the sample weighted to the U.S. adult population. The unweighted sample had fewer adults 18-44 years and more adults 45-64 years compared to the weighted sample.

Few adults thought no distance (7%) to walk for transportation was reasonable and only 10% thought walking 2 or more miles was reasonable (Table 2). Adults' thoughts on what distance to walk was reasonable differed by age ($p<0.001$), chronic condition or disability ($p<0.001$), and BMI ($p=0.004$) subgroups. Post hoc pairwise comparisons among age groups showed most of the differences were between the oldest adults (65 years and older) and adults who were younger (18-64 years). Among adults who thought no distance to walk was reasonable, fewer younger adults (18-64 years) compared to older adults (65 or more years) thought no distance to walk was reasonable. Conversely, among adults who thought walking 1.5 up to 2 miles was reasonable, fewer older adults (65 years or older) compared to younger adults (18-64 years) thought walking that distance was reasonable. More adults with a chronic condition or disability thought walking no distance or less than a half-mile was reasonable compared to those without a chronic condition or disability. Conversely, fewer adults with a chronic condition or disability thought walking at least 1.5 miles was reasonable compared to those without a chronic condition or disability. None of the comparisons among BMI categories were significant (Table 2).

Few adults also thought no amount of time (6%) to walk for transportation was reasonable and 16% thought walking for more than 30 minutes was reasonable (Table 3). Adults' thoughts on what amount of time to walk for transportation was reasonable significantly differed by age ($p<0.001$), education ($p=0.006$), and chronic condition or disability ($p<0.001$) subgroups. Similar to the findings for what adults thought was a reasonable distance, post hoc pairwise comparisons among age groups showed most of the differences were between the oldest adults (65 years and older) and adults who were younger. Among adults who thought no period of time to walk for transportation was reasonable, fewer younger adults (18-64 years) compared to older adults (65 or more years) thought walking for that time was reasonable. Conversely, among adults who thought walking more than twenty minutes was reasonable, fewer older adults (65 years or older) compared to younger adults (44-64 years) thought walking for that period of time was reasonable. Only two pairwise comparisons among the education subgroups were significant. Fewer college graduates compared to high school graduates or less thought no amount of time spent walking was reasonable. Conversely, more college graduates (35%) compared to high school graduates or less (25%) thought walking 11-20 minutes was reasonable. For chronic condition or disability, more adults with (9%) compared to adults without (5%) a chronic condition or disability thought no amount of time spent walking was reasonable.

More than 90% of adults thought walking for transportation for some distance (Figure 2) or amount of time (Figure 3) was reasonable. About 73% of adults thought short trips (walking distances up to one-half mile and up to 10 minutes) were reasonable. Forty-three percent of

adults thought longer trips (walking one mile or more and for twenty minutes or more) were reasonable. About 22% of adults thought walking even longer distances of 1.5 miles or more was reasonable and 16% of adults thought walking at least 30 minutes or more was reasonable.

There were differences in the time adults spent walking for transportation each week by what adults think is a reasonable distance (P for quadratic trend = 0.021) and amount of time (P for quadratic trend = 0.002) to walk, controlling sex, age group, race/ethnicity, BMI, education, chronic condition or disability, and region (Figure 4). Adults, who think walking for longer distances and times is reasonable, walked for longer periods each week. The trend for minutes spent walking per week by what adults think is a reasonable distance, however, was fairly stable for adults who think 0.5 to less than 2 miles is reasonable before increasing sharply for adults who think more than 2 miles is reasonable. The trend for what adults think is a reasonable time was stable for adults who think 6-20 minutes is reasonable before linearly increasing for adults who think more than 20 minutes and more than 30 minutes is reasonable.

Discussion

Our study found nearly all adults think walking for transportation for some distance or some amount of time is reasonable, and, approximately 40% of adults think walking at least one mile or walking more than 20 minutes is reasonable. In addition, our study found what adults think is reasonable is fairly homogeneous across most subgroups, except for age and chronic condition or disability. As expected, we found the length of the distances and times that older adults and adults with a chronic condition or disability think is reasonable is less than what younger adults and adults without a chronic condition or disability think is reasonable. Also, not surprisingly, adults who think longer distances and periods of time are reasonable spent more time walking for transportation.

Our findings were consistent with a state-based sample of adults where 8% of adults reported that it was not reasonable to walk for transportation at all, 47% reported walking up through 1 mile was reasonable, and 45% thought it would be reasonable to walk more than a mile.¹⁶ In our study, 7% adults thought it was not reasonable to walk at all, 57% thought walking up to 1 mile was reasonable, and 43% thought walking a mile or more was reasonable.

In contrast, our findings were inconsistent with a study among a few suburban cities which found only 29% of adults thought walking a mile or more was reasonable.¹⁵ They also found that more men thought longer distances, up to 1-mile, were reasonable compared to women. Our study, however, found no differences by sex. The differences between the two studies may be explained by the study samples. The suburban sample of adults consisted of primarily women and 20-30 year olds. Our study sample was a more diverse population with sampling procedures designed and weighted to be representative of U.S. adults.

Our findings were somewhat consistent with a study conducted in four Taiwanese cities.²³ They found that reported walking distance increased as acceptable walking distance

increased up to 20 minutes but then declined for those reporting an acceptable walking distance of more than 20 minutes.²³ Our study found that minutes spent walking per week increased, with no decline, as reasonable distance and time increased. The differences may be explained, in part, by the transportation trip purpose and the weather. The study of the Taiwanese cities limited the purpose to places to shop and did not exclude inclement weather²³ while our study included transportation walking trips for all purposes. Our study also specified what was reasonable in good weather.

This study has limitations and strengths. Selection bias may be present in a mail panel survey of volunteers. However, research suggests that findings from mail-based studies may be largely equivalent to findings from telephone surveys.²⁴ Another limitation of this study is walking minutes per week are self-reported and might be overestimated because of social-desirability bias, recall limitations, or other factors.²⁵ However, the overestimation is assumed to be constant across subgroups and although the actual minutes spent walking for transportation each week may be less, the overestimation would likely not affect differences in minutes spent walking by what adults think is a reasonable distance and amount of time. Our study was also unable to exclude non-ambulatory adults. However, we were able to control for disability to some extent through the use of an indicator of chronic condition or disability. A final limitation is the study's inability to control for the influences of environmental characteristics on walking distances and attitudes towards walking. Future work may wish to incorporate environmental characteristics and attitudes on walking when examining what adults think is a reasonable distance or time to walk. A major strength of our study is that it was drawn from a large, nationwide population which allowed us to look at differences by demographic characteristics. Another strength of our study was that distances and times adults deem reasonable to walk for transportation and the minutes adults spent walking each week were both measured.

Understanding what adults think is a reasonable distance and period of time to walk may help guide strategies to increase walking for transportation. The findings show that nearly all adults think at least some walking for transportation is reasonable so strategies focused on transportation walking have the potential to reach nearly all adults. The most impactful strategies to increase transportation walking as a way to increase physical activity may be those targeted to adults who think walking less than one mile or for twenty minutes or less is reasonable. A number of strategies cover a wide range of societal sectors²⁶ such as public health and transportation, land use, and community design. For example, public health programs may want to incorporate behavioral change strategies to show adults how they can reasonably walk to get to destinations for longer distances and periods of time.

Transportation departments should consider what adults think is a reasonable distance when making decisions concerning the placement of bus stops and proximity to major shopping areas and businesses, street connectivity, or benches for older adults. For example, transit departments that have focused first on the needs of older adults or adults with disabilities, by adding benches, have observed increases in those who ride the bus.²⁷ Another example is an innovative community program for older adults in which one of the strategies was to install outdoor benches at strategic locations.²⁸ Furthermore, methodology to estimate access to walkable amenities (known as the Walk Score®) has emerged as a measure in urban planning and other fields.²⁹ This metric awards points based on the distance to amenities

with maximum points given to amenities within a 5 minute walk (.25 miles). No points are given to amenities more than 1.5 miles (or a 30 minute walk) (<http://www.walkscore.com/methodology.shtml>). Studies like ours can help define these cut-off distances.

The current findings provide information on what adults think is a reasonable distance and amount of time to walk for transportation. Strategies aimed at promoting shorter trips have the potential to increase transportation walking because short walking distances are acceptable to most US adults. Public health programs designed to encourage longer distance trips may wish to improve environmental supports for transportation walking to make walking longer distances seem easier and more acceptable to most U.S. adults.

References

1. U.S. Department of Health and Human Services. Physical Activity Guidelines for Americans. 2008. p. ed2008
2. Paul P, Carlson S, Carroll D, Berrigan D, Fulton J. Walking for Transportation and Leisure Among U.S. Adults – National Health Interview Survey 2010. *J Phys Act Health*. 2014 in press.
3. Wanner M, Gotschi T, Martin-Diener E, Kahlmeier S, Martin BW. Active transport, physical activity, and body weight in adults: a systematic review. *Am. J. Prev. Med.* May; 2012 42(5):493–502. [PubMed: 22516490]
4. Saunders LE, Green JM, Petticrew MP, Steinbach R, Roberts H. What are the health benefits of active travel? A systematic review of trials and cohort studies. *PLoS One*. 2013; 8(8):e69912. [PubMed: 23967064]
5. Panter JR, Jones A. Attitudes and the environment as determinants of active travel in adults: what do and don't we know? *J Phys Act Health*. Jul; 2010 7(4):551–561. [PubMed: 20683098]
6. Saelens BE, Sallis JF, Frank LD. Environmental correlates of walking and cycling: findings from the transportation, urban design, and planning literatures. *Ann. Behav. Med.* 2003 Spring;25(2):80–91. [PubMed: 12704009]
7. 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.* Jul; 2012 44(7):1275–1286. [PubMed: 22217568]
8. Sallis JF, Frank LD, Saelens BE, Kraft MK. Active transportation and physical activity: opportunities for collaboration on transportation and public opportunities health research. *Transport Res a-Pol.* May; 2004 38(4):249–268.
9. Carmona, M.; Tiesdell, S.; Heath, T.; Oc, T. *Public Places, Urban Spaces: The Dimensions of Urban Design*. 2nd ed. Elsevier Ltd.; Burlington, MA: 2010.
10. Bartlett R. Testing the 'popsicle test': Realities of retail shopping in new 'traditional neighbourhood developments'. *Urban Stud.* Jul; 2003 40(8):1471–1485.
11. Daisa, J. Traffic, Parking, and Transit-Oriented Development. In: Dittmar, H.; Ohland, G., editors. *The New Transit Town: Best Practices in Transit-Oriented Development*. Island Press; Washington, D.C: 2004. p. 120
12. Ewing, R.; Hodder, R. *Best Development Practices: A Primer for Smart Growth*; p. 9 <http://www.epa.gov/dced/pdf/bestdevprimer.pdf>
13. Hu, PS.; Young, J.; Gray, C. *Nationwide Personal Transportation Survey: 1990 NPTS Databook Volumes I and II*. US Dept of Transportation; 1994.
14. Yang Y, Diez-Roux AV. Walking distance by trip purpose and population subgroups. *Am. J. Prev. Med.* Jul; 2012 43(1):11–19. [PubMed: 22704740]
15. Demetsky MJ, Perfater MA. Assessment of pedestrian attitudes and behavior in suburban environments. *Transportation Research Record*. 1975; (540):46–55.
16. Rafferty AP, McGee HB, Petersmarck KA, Miller CE. Proportion of Trips Made by Walking: Estimating a State-level Baseline for Healthy People 2010 Objective 22-14. *The Science of Health Promotion*. 2004; 18(5):387–391.

17. U.S. Department of Health and Human Services. A Guide for Health Promotion Practice. Second edition. National Institutes of Health; 2005. Theory at a Glance. <http://www.cancer.gov/cancertopics/cancerlibrary/theory.pdf> [Accessed September 30, 2013]
18. Mail panels vs. general samples: how similar and how different?. Market Facts.; Arlington Heights, IL: 1994.
19. Pollard W. Use of consumer panel survey data for public health communication planning: an evaluation of survey results. American Statistical Association 2002 Proceedings of the Section on Health Policy Statistics. 2002:2720–2724.
20. Putnam, R. Appendix I: Measuring Social Change. Simon and Schuster; New York: 2000. Bowling alone: the collapse and revival of American community.
21. Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults: The Evidence Report. National Heart, Lung, and Blood Institute; Bethesda (MD): 1998. NHLBI Obesity Education Initiative Expert Panel on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults.
22. Rauh MJ, Hovell MF, Hofstetter CR, Sallis JF, Gleghorn A. Reliability and validity of self-reported physical activity in Latinos. *Int. J. Epidemiol.* Oct; 1992 21(5):966–971. [PubMed: 1468861]
23. Hsia H-CH, Yeh K-Y, Tsukaguchi H, Vandebona U. The Study of the Relationships among Psychological Factors, Acceptable Walking Distance, and Reported Walking Distance for Shopping Trips. *Proceedings of the Eastern Asia Society for Transportation Studies.* 2013; 9
24. Link MW, Battaglia MP, Frankel MR, Osborn L, Mokdad AH. Address-based versus random-digit-dial surveys: comparison of key health and risk indicators. *Am. J. Epidemiol.* Nov 15; 2006 164(10):1019–1025. [PubMed: 16968861]
25. Sallis JF, Saelens BE. Assessment of physical activity by self-report: status, limitations, and future directions. *Res. Q. Exerc. Sport.* Jun; 2000 71(2 Suppl):S1–14. [PubMed: 10925819]
26. Pate RR. A national physical activity plan for the United States. *J Phys Act Health.* Nov; 2009 6(Suppl 2):S157–158. [PubMed: 20120124]
27. Hess D, Iseki H, Taylor B, Yoh A. Increasing transit ridership: Lessons from a survey of successful transit systems in the 1990s. *Journal of Public Transportation.* 2002; 5(3):33–66.
28. Centers for Disease Control and Prevention. *The State of Aging and Health in America.* Centers for Disease Control and Prevention, US Dept of Health and Human Services; Atlanta, GA: 2013. 2013
29. Carr LJ, Dunsiger SI, Marcus BH. Validation of Walk Score for estimating access to walkable amenities. *Br. J. Sports Med.* Nov; 2011 45(14):1144–1148. [PubMed: 20418525]

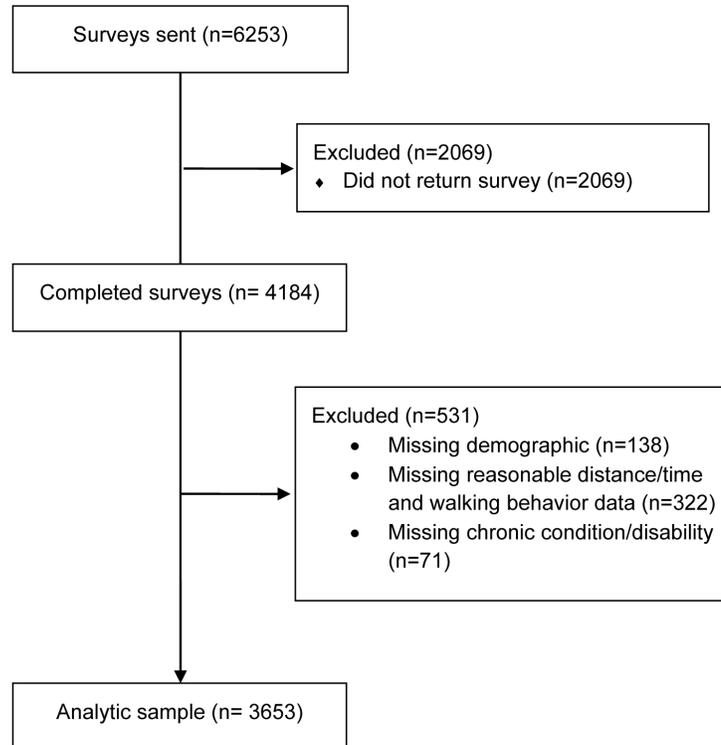


Figure 1.
Participant flow diagram

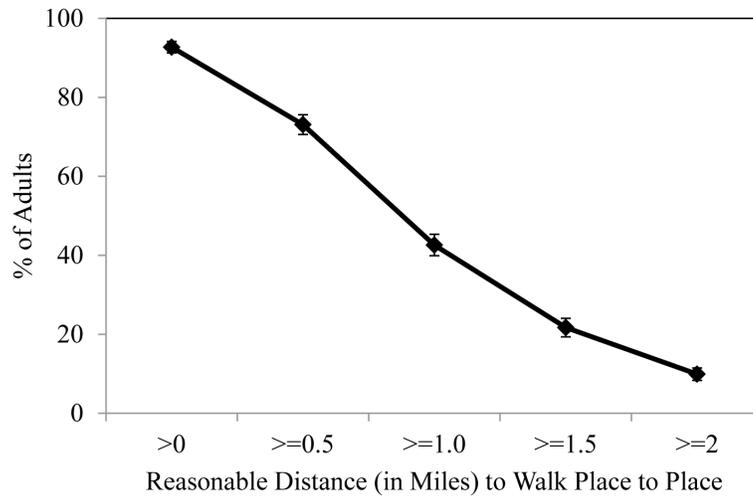


Figure 2. Weighted cumulative percentage, and corresponding 95% confidence intervals, of adults by think reasonable distance to walk to get from place to place

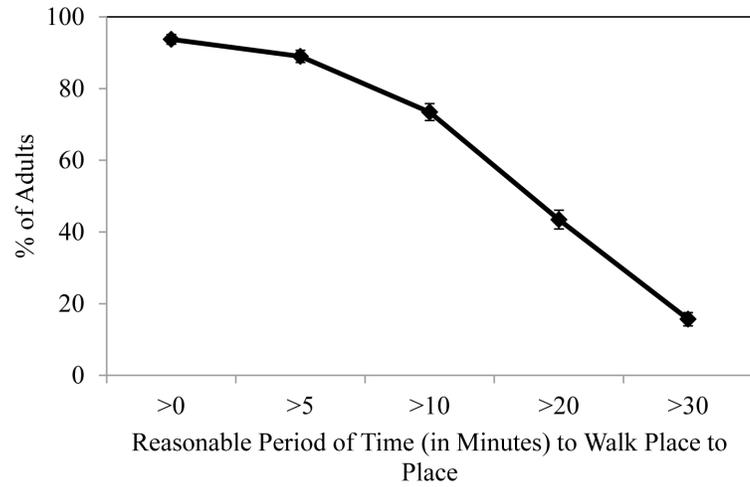


Figure 3. Weighted cumulative percentage, and corresponding 95% confidence intervals, of adults by think reasonable period of time to walk to get from place to place

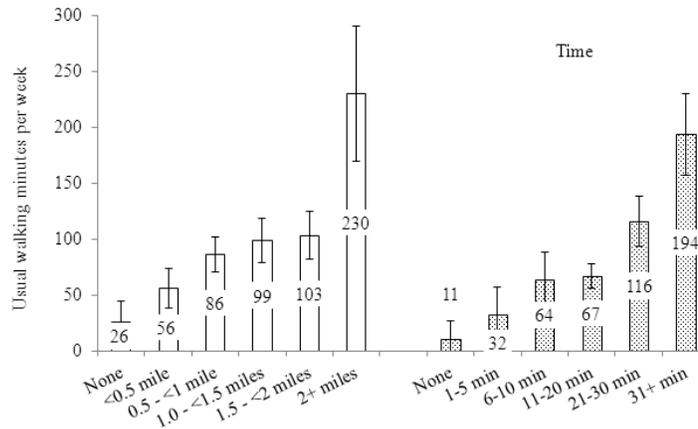


Figure 4. Weighted means, and corresponding 95% confidence intervals, for minutes adults spent walking for transportation each week by what adults think is a reasonable distance (solid bars) and time (patterned bars) (significant linear and quadratic trends, $p < 0.05$); means adjusted for sex, age groups, race/ethnicity, BMI, education level, chronic condition or disability, and region.

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 1

Demographic characteristics (n=3653), Summer ConsumerStyles, 2010

Characteristic	n	Sample %	Weighted	
			%	(SE)
Sex				
Male	1738	47.6	47.7	1.3
Female	1915	52.4	52.3	1.3
Age group (years)				
18-44	1046	28.6	36.2	1.2
45-64	1810	49.5	34.5	1.1
65+	797	21.8	16.5	0.7
Race/Ethnicity				
White, non-Hispanic	2520	69	69.7	1.3
Black, non-Hispanic	404	11.1	11.3	0.9
Hispanic	412	11.3	13.2	1.1
Other ^a	317	8.7	5.7	0.5
Body mass index category ^b				
Underweight / normal	1115	30.5	31.1	1.2
Overweight	1200	32.8	33.4	1.3
Obese	1338	36.6	35.5	1.3
Education level				
High school graduate or less	987	27	25.2	1.1
Some college	1374	37.6	42.4	1.4
College graduate	1292	35.4	32.4	1.1
Chronic condition or disability ^c				
Yes	1428	39.1	34.5	(1.2)
No	2225	60.9	65.5	(1.2)
Region				
Northeast	687	18.8	19.1	(1.1)
Midwest	884	24.2	26.4	(1.2)
South	1355	37.1	35.5	(1.2)
West	727	19.9	19.0	(1.0)

^aOther race includes: American Indian, Alaska Native, Asian, Native Hawaiian, other Pacific Islander, and multi-racial.

^bUnderweight/normal, overweight, and obese classifications are on the basis of body mass index, which is weight (kg) / height (m)². Underweight/normal: < 25.0; overweight: 25.0–29.9; and obese: 30.0.

^cCategories represent those who said yes or no to the question: “Do you have a chronic condition or disability?”

Weighted percentages for what adults think is a reasonable distance to walk for transportation by demographic characteristics, Summer ConsumerStyles, 2010

Table 2

Reasonable Distance	None		< 0.5 mile		0.5 to < 1.0 mile		1.0 to < 1.5 miles		1.5 to < 2.0 miles		2 or more miles	
	%	(SE)	%	(SE)	%	(SE)	%	(SE)	%	(SE)	%	(SE)
Total	7.3	(0.7)	19.7	(1.1)	30.4	(1.1)	20.9	(1.2)	11.7	(1.0)	9.9	(0.8)
Sex												
Male	7.7	(1.2)	18.3	(1.4)	31.0	(1.5)	20.5	(1.4)	11.7	(1.6)	10.8	(1.1)
Female	6.9	(0.9)	21.0	(1.8)	30.0	(1.5)	21.3	(1.8)	11.8	(1.2)	9.1	(1.1)
Age group (years)*												
18-44	5.7	(1.3) ^a	17.9	(2.1) ^a	28.3	(1.9)	21.6	(2.2)	15.3	(1.9) ^c	11.2	(1.5) ^b
45-64	5.8	(0.7) ^a	18.3	(1.0) ^a	32.6	(1.2)	22.2	(1.1) ^b	9.9	(0.8) ^b	11.2	(0.8) ^b
65+	15.1	(1.4) ^b	28.0	(1.7) ^b	32.2	(1.8)	16.1	(1.4) ^a	5.2	(0.8) ^a	3.5	(0.7) ^a
Race/Ethnicity												
White	7.6	(0.9)	19.5	(1.1)	31.0	(1.2)	21.4	(1.4)	11.6	(1.2)	8.9	(1.0)
Black	9.2	(2.4)	16.5	(2.3)	27.1	(3.4)	22.6	(4.7)	12.2	(2.1)	12.4	(2.6)
Hispanic	4.7	(1.0)	22.8	(5.3)	29.2	(3.6)	16.6	(2.4)	13.2	(3.2)	13.5	(2.3)
Other [§]	5.3	(1.8)	20.6	(4.6)	33.4	(4.1)	22.1	(3.6)	9.0	(2.1)	9.7	(1.9)
Body mass index category ^{§§**}												
Underweight /normal	5.8	(1.1)	16.7	(1.6)	32.3	(1.9)	24.2	(2.4)	10.3	(1.3)	10.8	(1.6)
Overweight	5.4	(1.0)	19.9	(2.5)	29.2	(1.9)	21.3	(1.8)	15.1	(2.3)	9.2	(1.2)
Obese	10.4	(1.5)	22.1	(1.7)	30.0	(1.8)	17.7	(1.9)	9.9	(1.1)	9.9	(1.3)
Education level												
High School graduate or less	12.8	(2.0)	22.6	(2.1)	27.2	(2.0)	15.7	(1.4)	9.3	(1.1)	12.4	(1.7)
Some college	6.7	(1.1)	19.6	(2.2)	26.6	(1.7)	21.3	(2.3)	14.7	(2.1)	11.0	(1.4)
College graduate	3.8	(0.6)	17.4	(1.4)	37.9	(1.7)	24.5	(1.5)	9.8	(1.0)	6.6	(0.8)
Chronic condition or disability ^{§§*}												
Yes	10.7	(0.9) ^b	26.1	(2.2) ^b	29.3	(1.7)	19.0	(1.4)	7.6	(0.9) ^a	7.3	(0.9) ^a
No	5.5	(1.0) ^a	16.3	(1.2) ^a	31.0	(1.4)	21.9	(1.6)	13.9	(1.4) ^b	11.4	(1.1) ^b
Region												

Reasonable Distance	None		< 0.5 mile		0.5 to < 1.0 mile		1.0 to < 1.5 miles		1.5 to < 2.0 miles		2 or more miles	
	%	(SE)	%	(SE)	%	(SE)	%	(SE)	%	(SE)	%	(SE)
Northeast	7.0	(1.7)	18.8	(2.7)	28.7	(2.5)	22.3	(2.5)	15.1	(3.5)	8.1	(1.4)
Midwest	6.0	(1.6)	16.6	(1.6)	34.5	(2.4)	21.6	(2.7)	10.3	(1.7)	11.1	(1.8)
South	7.9	(1.1)	22.3	(1.8)	28.2	(1.6)	21.2	(2.0)	10.3	(1.0)	10.1	(1.3)
West	8.3	(1.5)	19.9	(3.4)	30.7	(2.4)	18.1	(1.7)	13.1	(2.0)	9.9	(1.7)

§ Other race includes: American Indian, Alaska Native, Asian, Native Hawaiian, other Pacific Islander, and multi-racial.

§§ Underweight / normal, overweight, and obese classifications are based on body mass index, which is weight (kg) / height (m)². Underweight / normal: < 25.0; overweight: 25.0--29.9; and obese: ≥ 30.0; Height and weight were self-reported.

§§§ Categories represent those who said yes or no to the question: "Do you have a chronic condition or disability?"

Significant association between reasonable distance and age group and chronic condition or disability (*; p<0.001) and body mass index category (**; p=0.006).

Significant pairwise differences between age groups and are noted as follows: a<b<c. No significant pairwise differences were observed between body mass index categories.

Table 3

Weighted percentages for what adults think is a reasonable amount of time to walk for transportation by demographic characteristics, Summer ConsumerStyles, 2010

Reasonable time	None		1-5 min		6-10 min		11-20 min		21-30 min		31 or more min	
	%	(SE)	%	(SE)	%	(SE)	%	(SE)	%	(SE)	%	(SE)
Total	6.3	(0.7)	4.8	(0.5)	15.5	(1.0)	30.0	(1.3)	27.8	(1.1)	15.7	(0.9)
Sex												
Male	7.2	(1.2)	5.2	(0.8)	14.8	(1.3)	29.9	(1.8)	27.3	(1.5)	15.6	(1.2)
Female	5.4	(0.7)	4.3	(0.7)	16.2	(1.4)	30.2	(1.9)	28.2	(1.7)	15.7	(1.4)
Age group (years)*												
18-44	5.0	(1.2) ^a	4.3	(1.0)	16.1	(1.8)	30.8	(2.5)	27.5	(2.1)	16.3	(1.7)
45-64	4.9	(0.6) ^a	4.4	(0.5)	13.7	(0.9)	29.8	(1.2)	30.2	(1.2) ^b	17.0	(1.0) ^b
65+	12.8	(1.3) ^b	6.9	(1.0)	17.7	(1.5)	28.2	(1.7)	23.3	(1.6) ^a	11.1	(1.2) ^a
Race/Ethnicity												
White	6.8	(0.9)	4.3	(0.5)	15.2	(1.1)	31.4	(1.5)	27.5	(1.2)	14.8	(1.1)
Black	5.8	(1.3)	7.5	(2.3)	18.2	(2.8)	21.4	(2.9)	32.1	(4.5)	15.0	(2.7)
Hispanic	4.2	(1.0)	2.7	(0.8)	14.7	(3.3)	31.1	(4.9)	26.8	(3.4)	20.5	(3.3)
Other [§]	5.0	(1.7)	9.3	(4.5)	16.6	(3.4)	28.1	(3.6)	24.3	(3.8)	16.6	(2.7)
Body mass index category ^{§§}												
Underweight / normal	5.7	(1.1)	3.5	(0.8)	14.1	(1.5)	32.1	(2.1)	27.8	(2.3)	16.8	(1.7)
Overweight	4.7	(0.9)	4.1	(0.7)	16.9	(2.0)	30.9	(2.7)	26.9	(1.9)	16.5	(1.7)
Obese	8.2	(1.4)	6.5	(1.2)	15.5	(1.5)	27.4	(2.0)	28.5	(1.8)	13.9	(1.4)
Education level ^{**}												
High School graduate or less	11.8	(2.0) ^b	6.8	(1.4)	16.7	(1.9)	24.0	(1.9) ^a	24.0	(1.7)	16.7	(1.8)
Some college	5.6	(0.9)	3.8	(0.7)	15.8	(1.8)	29.6	(2.6)	27.5	(2.1)	17.8	(1.7)
College graduate	2.8	(0.5) ^a	4.4	(0.8)	14.3	(1.2)	35.3	(1.6) ^b	31.1	(1.6)	12.1	(1.1)
Chronic condition or disability ^{§§§*}												
Yes	8.9	(0.9) ^b	6.5	(1.0)	16.9	(1.4)	28.5	(2.1)	26.8	(1.6)	12.5	(1.2)
No	4.9	(0.9) ^a	3.8	(0.6)	14.8	(1.3)	30.8	(1.7)	28.3	(1.5)	17.4	(1.3)
Region												

Reasonable time	None		1-5 min		6-10 min		11-20 min		21-30 min		31 or more min	
	%	(SE)	%	(SE)	%	(SE)	%	(SE)	%	(SE)	%	(SE)
Northeast	6.2	(1.6)	3.1	(0.7)	18.8	(3.1)	28.6	(3.3)	27.9	(2.5)	15.5	(2.0)
Midwest	5.2	(1.6)	2.7	(0.5)	16.2	(1.8)	30.9	(2.4)	28.0	(2.7)	17.1	(2.1)
South	6.5	(0.9)	7.3	(1.3)	15.6	(1.5)	30.2	(2.1)	25.5	(1.6)	14.9	(1.5)
West	7.4	(1.5)	4.7	(1.0)	11.3	(1.5)	29.8	(3.3)	31.5	(2.6)	15.2	(1.9)

§ Other race includes: American Indian, Alaska Native, Asian, Native Hawaiian, other Pacific Islander, and multi-racial.

§§ Underweight / normal, overweight, and obese classifications are on based on body mass index, which is weight (kg) / height (m)². Underweight: 25.0--29.9; and obese: 30.0; Height and weight were self-reported.

§§§ Categories represent those who said yes or no to the question: "Do you have a chronic condition or disability?"

Significant association between reasonable time and age group and chronic condition/disability (*; p<0.001), body mass index category and education level (**; p=0.001). No significant pairwise differences were observed between body mass index categories; Significant pairwise differences between age groups and education levels are noted as follows: a<b.