



Walking Increases Among African American Adults Following a Community-based Physical Activity Intervention: Racial and Ethnic Approaches to Community Health, 2002–2005

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# Walking Increases Among African American Adults Following a Community-based Physical Activity Intervention: Racial and Ethnic Approaches to Community Health, 2002–2005

## Abstract

Racial and Ethnic Approaches to Community Health (REACH) 2010, a communitybased program, is a cornerstone of CDC's efforts to eliminate racial and ethnic health disparities. Six African American REACH sites implemented walking interventions as part of their plans to decrease health disparities. We evaluated changes in walking using annual evaluation assessments (2002–2005) from the REACH 2010 Risk Factor Survey. Walking was classified 3 ways: (1) any walking ( $\geq 10$  minutes per week); (2) regular walking ( $\geq 30$  minutes each day,  $\geq 5$  days per week); and (3) median minutes of walking per week. Any walking increased from 68.3% in 2002 to 72.6% in 2005 (P for trend  $< 0.01$ ). Regular walking increased from 22.9% in 2002 to 26.7% in 2005 (P for trend  $< 0.01$ ). Median minutes of walking per week increased from 126 in 2002 to 150 in 2005 (P for trend  $< 0.01$ ). Community-based walking interventions may be an effective approach for increasing the activity among African Americans.

## Keywords

African Americans; Community-based intervention; Exercise; Physical activity; Walking

## Cover Page Footnote

Division of Adult and Community Health, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention. REACH grantees in Charlotte, NC, Atlanta, GA, Nashville, TN, Charleston and Georgetown Counties, SC, Clark County, NV, and Kansas City, MO

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## **Walking Increases Among African American Adults Following a Community-based Physical Activity Intervention: Racial and Ethnic Approaches to Community Health, 2002–2005**

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### **ABSTRACT**

Racial and Ethnic Approaches to Community Health (REACH) 2010, a community-based program, is a cornerstone of CDC's efforts to eliminate racial and ethnic health disparities. Six African American REACH sites implemented walking interventions as part of their plans to decrease health disparities. We evaluated changes in walking using annual evaluation assessments (2002–2005) from the REACH 2010 Risk Factor Survey. Walking was classified 3 ways: (1) any walking ( $\geq 10$  minutes per week); (2) regular walking ( $\geq 30$  minutes each day,  $\geq 5$  days per week); and (3) median minutes of walking per week. Any walking increased from 68.3% in 2002 to 72.6% in 2005 ( $P$  for trend  $< 0.01$ ). Regular walking increased from 22.9% in 2002 to 26.7% in 2005 ( $P$  for trend  $< 0.01$ ). Median minutes of walking per week increased from 126 in 2002 to 150 in 2005 ( $P$  for trend  $< 0.01$ ). Community-based walking interventions may be an effective approach for increasing the activity among African Americans.

**Key words:** physical activity, African American, walking, community-based intervention

### **BACKGROUND**

Regular physical activity is associated with a decreased risk for obesity, heart disease, hypertension, type-2 diabetes, certain cancers, and premature mortality (U.S. Dept of Health and Human Services, 2008). Increasing the proportion of adults who engage in moderate intensity physical activity for at least 150 minutes per week or vigorous intensity physical activity for at least 75 minutes per week or an equivalent combination is one of the Healthy People 2020 (HP 2020) national health objectives (Objective PA-2.1) (U.S. Dept of Health and Human Services, 2011). Unfortunately, a large proportion of African Americans fail to meet recommended levels of physical activity (Crespo, 2000). According to 2007 data from the National Health Interview Survey, adult participation in

regular leisure-time activity showed significant racial disparity: 32.1% of white participants and 23% of African American participants reported engaging in regular, leisure-time activity (Pleis, 2009). Effective interventions are needed to increase physical activity participation among African American adults.

Walking is a preferred form of physical activity among U.S. adults (U.S. Dept of Health and Human Services, 1996). As a form of activity, walking is desirable because it requires no special skills or equipment and relatively little or no cost. Walking is one of the simplest, positive changes that people can make to positively impact their overall health status (Eyler, 2002; Lee, 2008). Because walking can be performed by most individuals, it is a frequently prescribed form of physical activity, and brisk walking has been shown to reduce heart disease, stroke and diabetes (Lee 2008). For these reasons, many community-based interventions have elected to incorporate walking as a desired behavior to increase physical activity levels.

The Guide to Community Preventive Services recommends eight evidence-based strategies for increasing physical activity among Americans (CDC, 2005). These strategies are: community-wide campaigns that involve many community sectors, include highly visible, broad-based, multi-component strategies (e.g. social support, risk factor screening, or health education), and may address other cardiovascular risk factors such as smoking and diet; individually adapted health behavior change programs that teach behavioral skills to help participants incorporate physical activity into their daily routines and are tailored to each individual's specific interests, preferences, and readiness for change; social support interventions in community settings that focus on changing physical activity behavior through building, strengthening, and maintaining social networks that provide supportive relationships for behavior change; enhanced school-based physical education; community scale urban design and land-use policies that support physical activity; creation of or enhanced access to places for physical activity combined with informational outreach activities; street-scale urban design and land use policies to support physical activity; and point-of-decision prompts to encourage use of stairs. Research indicates that these recommended strategies may require adaptation and tailoring to be appropriate for specific communities. A study of African American adults in an urban, Midwestern community found that intervention strategies and action steps that were identified by members of the community were necessary to reach this population (Kelly, 2007). Another study conducted in the Mississippi Delta sought to determine how best to adapt proven, evidence-based strategies to increase physical activity among underserved racial or ethnic groups. They found that strategies adapted for cultural relevance were appealing and received the most positive feedback among African American participants (Van Duyn, 2007). Further, these researchers found that community strategies that aim to create or improve social support and increase access to physical activity venues received the most favorable feedback.

In response to the need for innovative, locally tailored, community-based strategies to eliminate racial disparities in health, the Centers for Disease Control and Prevention (CDC) started the REACH program in 1999 to be the cornerstone of CDC's efforts to eliminate racial and ethnic health disparities in the U.S. The fundamental objective of REACH is to eliminate health disparities among segments of the population, including differences that occur by race, ethnicity, education, income, or geographic location. Through the REACH 2010 cooperative agreement program, 40 community coalitions were funded to design, implement, and evaluate community-driven strategies to close the health disparity gap in one or more of the following racial and ethnic minority groups: African Americans, American Indians, Alaska Natives, Asian Americans, Pacific Islanders, or Hispanics/Latinos. In addition, communities focused on reducing disparities in the following six health priority areas: breast and cervical cancer screening and management, cardiovascular disease, diabetes

mellitus, immunizations, HIV/AIDS, and infant mortality (CDC, 2007). Six of the funded REACH 2010 communities targeting African American adults implemented a walking intervention as one of their strategies to increase physical activity. These community coalitions were located in Charlotte, NC, Atlanta, GA, Nashville, TN, Charleston and Georgetown Counties, SC, Clark County, NV, and Kansas City, MO. Each of these six community coalitions were charged with decreasing health disparities in cardiovascular disease, diabetes, or both cardiovascular disease and diabetes. The walking interventions that the community coalitions implemented were locally tailored and varied from site to site but included the following: walking clubs, neighborhood walking groups, and community walking tours, all of which are examples of interventions recommended in the Guide to Community Preventive Services. A unique feature of REACH was that the project did not use a standardized intervention protocol but was sufficiently flexible to allow community choices based on the unique social, political, and cultural experience and available resources and local realities (CDC, 2007). The culturally sensitive interventions were tailored for minorities and diverse segments of communities. For example, churches were selected as active sites for a series of health promotion and disease prevention activities in the Nevada community (Woodson, 2009). The community of Charlotte, NC recruited and trained lay health workers in the implementation of physical activity program (Plescia, 2008).

Our study reports changes to measures of any walking ( $\geq 10$  minutes per week), regular walking ( $\geq 30$  minutes each day,  $\geq 5$  days per week), and median minutes of walking from 2002 to 2005 among African American adults residing in communities where large-scale, community-based walking interventions were implemented through the REACH 2010 program. In addition, this study examines whether changes in walking behaviors differed by sex, age, education, and BMI. This analysis allows us to evaluate community level changes in six communities that implemented a walking intervention as one of the strategies to increase physical activity in communities funded by the REACH program.

## METHODS

### Study Population and Survey Instrument

In 2001, CDC initiated the REACH 2010 Risk Factor Survey in 27 REACH communities to monitor the health of racial and ethnic minority populations. CDC contracted with the National Organization for Research at the University of Chicago (NORC) to establish sampling methods and to conduct annual REACH 2010 Risk Factor Surveys in communities charged with eliminating disparities in cardiovascular diseases, diabetes, and breast and cervical cancer. The REACH Risk Factor Survey is a random, digit-dialed, telephone survey with screening at the beginning of the survey to ensure that respondents are members of a racial/ethnic minority group. Detailed methods of the design and implementation of the REACH 2010 Risk Factor Survey are described elsewhere (CDC, 2004). This study used data from the 2002–2005 REACH 2010 Risk Factor Surveys to evaluate changes in walking among African Americans living in the six REACH communities that developed large scale community-based walking interventions targeted towards African American adults as part of their larger REACH program (Charlotte, NC, Atlanta, GA, Nashville, TN, Charleston and Georgetown Counties, SC, Clark County, NV, and Kansas City, MO). The years 2002–2005 were chosen because complete data on the prevalence of walking were available for all six of the communities. The median response rate for household screening for eligibility was 69% in 2002, 73% in 2003, 67% in 2004, and 78% in 2005. The median response rate for a household member completing the interview after being screened for eligibility was 63% in 2002, 62% in 2003, 56% in 2004, and 46% in 2005.

## Walking Assessment

For our analysis, we classified walking in 3 ways: (1) any walking refers to walking 10 or more minutes at a time in a usual week; (2) regular walking refers to walking 30 or more minutes per day on 5 or more days each week, which was calculated to approximate the HP 2020 objective for moderate physical activity; and (3) median minutes of walking per week among those who reported any walking. We assessed walking by using three questions from the REACH 2010 Risk Factor Survey. For each year of data, respondents were asked, "In a usual week, do you walk for at least 10 minutes at a time for recreation, exercise, to get to and from places, or for any other reason?" Those who answered yes to this question were asked to report how many days per week they walk, and how much total time they spend walking on each of these days.

## Measurement of Demographic Characteristics

We evaluated walking by using several demographic characteristics: sex, age, and education. Age was divided into four categories: 18–34, 35–44, 45–64, and 65 or older. Respondents were assigned to educational categories on the basis of the highest level of education they completed, and these categories were the following: less than high school, high school graduate, some college, and college graduate. In addition, we assessed walking by weight status. Body mass index (BMI) was calculated on the basis of reported height and weight and was categorized as normal ( $\text{BMI} \leq 24.9$ ), overweight ( $\text{BMI} = 25.0\text{--}29.9$ ), and obese ( $\text{BMI} \geq 30$ ) (National Institutes of Health, 1998).

## Statistical Analysis

We calculated age-adjusted overall prevalence estimates of any walking and regular walking by year, as well as demographic-specific prevalence estimates of walking by year (adjusted to the 2000 U.S. standard population) (Klein, 2001). We also calculated median minutes of walking per week for each year of data. We chose to express the median minutes of walking per week because the distribution of total minutes of walking per week was not normally distributed.

All analyses were conducted with data from all communities combined to allow us to evaluate the large-scale impact of community-based interventions. However, analyses included a variable indicating a respondent's community of residence to control for the varying characteristics of the individual communities. Logistic regression was used to determine the P-value for trend for any walking and regular walking with walking as the dependent variable and year as the independent variable. To calculate the P-value for trend for median minutes of walking per week, a new variable was created that dichotomized individual respondents according to the median minutes of walking per week at baseline (2002). Respondents were dichotomized as: (1) having a value of total minutes of walking per week that was either greater than the baseline median minutes of walking per week, or (2) less than or equal to the baseline median minutes of walking per week. Logistic regression was used to determine the P-value for trend with the new dichotomized variable of minutes of walking per week as the dependent variable, and year as the independent variable.

To test for effect modification, interaction terms of demographic variables by year were created and entered into logistic regression models with the corresponding walking variable as the dependent variable. In addition, to test whether the associations were modified by community, an interaction term of community by year was entered into logistic regression models with the corresponding walking variable as the dependent variable. Analyses were conducted by using SUDAAN version 9.0 to control for complex sampling and nonresponse.



## RESULTS

Approximately 20,000 African Americans living in the 6 REACH communities are included in this analysis with nearly 5,000 individuals completing the REACH Risk Factor Survey each year from 2002 to 2005 (Table 1). The distributions of sex, age, education, and BMI were similar over the 4 study years. Two-thirds of respondents were female and more than half were age 45 years or older. The percentage of college graduates among respondents ranged from 16.5% in 2002 to 19.4% in 2005. In all years of data, approximately 20% of respondents had less than a high school education (range 16.9%–21.5%). The percentage of respondents who were overweight ranged from 33.7% to 35.0% during the study period, whereas the percentage of obese participants ranged from 36.9% to 38.3%.

**Table 1. Demographics for African American respondents\*, REACH 2010 Risk Factor Survey, 2002–2005**

	2002 (n = 5,046)		2003 (n = 5,202)		2004 (n = 5,303)		2005 (n = 5,086)	
	n	%	n	%	n	%	n	%
Demographic characteristics								
<b>Sex</b>								
M	1,651	32.7	1,705	32.8	1,733	32.7	1,510	29.7
F	3,395	67.2	3,497	67.2	3,570	67.3	3,576	70.3
<b>Age</b>								
18–24	483	9.6	456	8.8	423	8.0	247	4.9
25–34	633	12.6	637	12.3	617	11.7	486	9.7
35–44	910	18.1	811	15.7	877	16.6	722	14.4
45–64	1,835	36.5	1,982	38.3	2,031	38.6	2,299	45.8
≥ 65	1,165	23.2	1,293	25.0	1,321	25.1	1,269	25.3
<b>Education†</b>								
Less than high school	1,081	21.5	1,133	21.8	1,067	20.2	857	16.9
High school graduate	1,909	37.9	1,884	36.3	1,928	36.5	2,062	40.7
Some college	1,215	24.1	1,272	24.5	1,317	24.9	1,168	23.0
College graduate	830	16.5	900	17.3	977	18.5	982	19.4
<b>BMI‡</b>								
Normal	1,412	29.2	1,405	28.0	1,461	28.5	1,280	27.4
Overweight	1,642	34.0	1,691	33.7	1,738	34.0	1,636	35.0
Obese	1,783	36.9	1,918	38.3	1,921	37.5	1,763	37.7

\* Respondents are from the following REACH communities: Charlotte, NC, Atlanta, GA, Nashville, TN, Charleston and Georgetown Counties, SC, Clark County, NV, and Kansas City, MO.

† 11 missing in 2002; 13 missing in 2003; 14 missing in 2004; and 17 missing in 2005.

‡ 209 missing in 2002; 188 missing in 2003; 183 missing in 2004; and 407 missing in 2005.

The age-adjusted prevalence estimates of any walking and regular walking for each year of data are presented in Table 2. Any walking increased significantly from 68.3% in 2002 to 72.6% in 2005 ( $P$  for trend  $< 0.01$ ). Regular walking also increased significantly during the study period from 22.9% in 2002 to 26.7% in 2005 ( $P$  for trend  $< 0.01$ ). Table 2 also includes information about the age-adjusted prevalence of any walking and regular walking within strata of sex, age, education, and BMI. Any walking increased significantly among men, women, respondents age 18–64, respondents with less than a high school education, some college education, college graduates, and among all of the BMI categories. Regular walking increased significantly among women, respondents age 45–64, those with less than a high school education, some college education, and normal weight and obese respondents. An interaction effect was not observed for any of the demographic variables by year for either any or regular walking ( $P > 0.05$ ).

**Table 2. Age-adjusted prevalence of any walking and regular walking among African Americans by sex, age, and education, REACH 2010 Risk Factor Survey, 2002–2005\***

	2002 % (95% CI)	2003 % (95% CI)	2004 % (95% CI)	2005 % (95% CI)	<i>P</i> for trend <sup>†</sup>	<i>P</i> for interaction <sup>‡</sup>
<b>Any Walking</b>						
Overall	68.3 (66.7–69.9)	68.9 (67.0–70.8)	71.8 (70.0–73.5)	72.6 (70.9–74.3)	< 0.01	
Sex						
M	67.7 (64.9–70.4)	70.8 (67.9–73.6)	74.3 (71.4–77.0)	73.4 (70.4–76.2)	< 0.01	0.37
F	68.7 (66.7–70.6)	67.7 (65.2–70.1)	70.1 (67.9–72.1)	72.1 (70.0–74.2)	< 0.01	
Age						
18–34	73.9 (70.7–76.8)	71.2 (66.9–75.0)	76.9 (73.3–80.1)	78.0 (74.1–81.5)	0.02	0.34
35–44	69.3 (65.6–72.7)	76.2 (72.1–79.9)	72.7 (68.6–76.4)	77.9 (73.6–81.6)	0.01	
45–64	67.3 (64.6–69.9)	66.9 (64.0–69.6)	71.6 (68.8–74.2)	70.2 (67.9–72.5)	0.02	
≥65	58.8 (55.4–62.1)	58.9 (55.0–62.7)	61.7 (58.1–65.2)	60.0 (56.7–63.2)	0.45	
Education						
Less than high school	64.8 (60.7–68.8)	64.4 (59.0–69.4)	66.9 (61.6–72.0)	69.3 (64.1–73.9)	0.14	0.44
High school graduate	68.5 (65.8–71.0)	70.0 (67.1–72.8)	69.0 (66.0–71.7)	71.7 (69.0–74.3)	0.17	
Some college	70.0 (66.9–73.0)	70.3 (66.8–73.5)	75.9 (72.7–78.9)	74.6 (71.1–77.8)	< 0.01	
College graduate	71.1 (66.9–75.0)	68.2 (62.9–73.1)	76.8 (73.0–80.2)	75.0 (70.6–78.8)	0.05	
BMI						
Normal	71.3 (68.5–74.0)	69.9 (66.3–73.2)	73.6 (70.3–76.7)	74.9 (71.5–78.0)	0.05	0.73
Overweight	69.6 (66.8–72.2)	72.2 (69.0–75.2)	74.1 (71.2–76.8)	73.1 (69.8–76.1)	0.05	
Obese	64.8 (62.0–67.6)	65.2 (61.5–68.7)	68.5 (65.5–71.5)	71.9 (68.9–74.7)	< 0.01	
<b>Regular Walking</b>						
Overall	22.9 (21.4–24.3)	23.6 (21.9–25.4)	24.9 (23.2–26.8)	26.7 (25.0–28.5)	< 0.01	
Sex						
M	25.9 (23.4–28.6)	28.7 (25.5–32.0)	27.2 (24.1–30.6)	30.8 (27.7–34.0)	0.06	0.58
F	20.9 (19.2–22.6)	20.3 (18.4–22.4)	23.4 (21.5–25.5)	24.3 (22.3–26.4)	< 0.01	
Age						
18–34	26.6 (23.7–29.7)	25.9 (22.4–29.8)	31.0 (27.0–35.2)	29.2 (25.3–33.3)	0.09	0.99
35–44	25.7 (22.4–29.3)	29.1 (24.9–33.8)	25.2 (21.5–29.4)	32.7 (28.6–37.1)	0.07	
45–64	21.9 (19.6–24.3)	22.5 (20.0–25.2)	23.1 (20.6–25.7)	25.5 (23.5–27.7)	0.03	
≥ 65	14.1 (11.9–16.5)	14.0 (11.8–16.6)	16.9 (14.1–20.1)	16.6 (14.2–19.2)	0.07	
Education						
Less than high school	22.2 (18.7–26.0)	24.4 (20.0–29.3)	24.2 (19.9–29.0)	29.3 (24.3–34.8)	0.01	0.65
High school graduate	24.2 (21.9–26.6)	25.5 (22.7–28.6)	24.0 (21.4–26.8)	28.0 (25.4–30.7)	0.08	
Some college	22.8 (20.1–25.8)	24.1 (21.2–27.3)	27.0 (23.7–30.6)	28.1 (24.6–31.9)	0.02	



College graduate	20.9 (17.6–24.6)	18.4 (14.9–22.5)	24.5 (20.6–28.9)	22.1 (18.3–26.5)	0.45	
BMI						
Normal	26.5 (23.8–29.4)	26.1 (22.7–29.9)	29.8 (26.5–33.3)	31.4 (28.1–34.8)	0.01	
Overweight	24.9 (22.3–27.6)	27.5 (24.2–31.0)	25.5 (22.6–28.7)	27.9 (24.8–31.2)	0.19	0.48
Obese	18.9 (16.7–21.3)	18.6 (16.3–21.3)	20.1 (17.6–22.9)	23.9 (21.0–27.2)	<0.01	

\* *Any* walking refers to walking  $\geq 10$  minutes at a time in a usual week; *regular* walking refers to walking  $\geq 30$  minutes a day on  $\geq 5$  days per week. Respondents are from the following REACH communities: Charlotte, NC, Atlanta, GA, Nashville, TN, Charleston and Georgetown Counties, SC, Clark County, NV, and Kansas City, MO

† Logistic regression was used to determine the *P*-value for trend for any walking and regular walking with walking as the dependent variable and year as the independent variable.

‡ Interaction terms of demographic variables by year were created and entered into logistic regression models with the corresponding walking variable as the dependent variable to test for effect modification.

The median minutes of total walking per week (among respondents who reported any walking) for each year of data are presented in Table 3. The median walking times were 126 minutes per week in 2002 and 150 minutes per week in 2005. This represented a significant increase in median minutes of walking per week during the study period (*P* for trend < 0.01). Median minutes of walking per week increased significantly among women, respondents age 45–64 and 65 or older, those with less than a high school education, some college education, college graduates, and normal weight and obese respondents. An interaction effect was not observed for any of the demographic variables by year for median minutes of walking per week (*P* > 0.05). An interaction effect was not observed for community by year for any of the walking variables examined (*P* > 0.05).

## DISCUSSION

This study included 4 years of data from 6 REACH communities and more than 20,000 African American respondents. Any walking (i.e., 10 or more minutes per week), regular walking (i.e., 30 or more minutes on 5 or more days per week), and median minutes of walking per week (among those who reported any walking) increased significantly in this population of African American adults from 2002 to 2005, with significant increases occurring among most of the sex, age, education, and BMI subgroups of the population.

Previous studies to investigate effective strategies for increasing physical activity among African American populations have found that locally defined and culturally appropriate interventions are received favorably by people, especially when coupled with strategies to create or improve social support, or increase access to physical activity venues (Kelly, 2007). We evaluated changes in walking among African Americans living in communities where locally developed, culturally appropriate, large-scale walking interventions were implemented. These interventions included walking clubs, neighborhood walking groups, and community walking tours, which all seek to create or improve social support for physical activity, as is recommended in the Guide to Community Preventive Services. Although these interventions are not designed to increase access to physical activity venues, they do create options for physical activity that do not require special venues, equipment, or skills. Our results indicate that all three categories of walking (i.e., any walking, regular walking, and total minutes of walking per week) increased significantly from 2002 to 2005. These findings may suggest that locally developed, culturally appropriate interventions are effective for increasing walking among African Americans.

**Table 3. Median minutes of walking per week (and interquartile range) among African Americans\* who reported any walking by sex, age, and education, REACH 2010 Risk Factor Survey, 2002–2005**

	2002 Median (IQR)	2003 Median (IQR)	2004 Median (IQR)	2005 Median (IQR)	<i>P</i> for trend†	<i>P</i> for interaction‡
Total Minutes Walking§						
Overall	126 (70–240)	120 (70–240)	135 (70–250)	150 (80–300)	< 0.01	
Sex						
Men	150 (75–315)	140 (75–300)	140 (75–360)	180 (90–420)	0.07	0.23
Women	120 (60–210)	120 (70–210)	135 (70–225)	140 (75–246)	< 0.01	
Age						
18–34	140 (75–240)	140 (75–300)	150 (90–300)	150 (90–340)	0.07	
35–44	150 (80–315)	125 (70–300)	125 (75–270)	175 (90–420)	0.32	0.37
45–64	125 (60–225)	120 (70–240)	125 (70–270)	150 (75–300)	0.04	
≥ 65	105 (60–210)	120 (60–210)	120 (60–210)	120 (70–240)	0.03	
Education						
Less than high school	120 (70–280)	135 (70–280)	135 (60–280)	150 (90–360)	0.01	
High school graduate	140 (70–300)	135 (70–300)	125 (75–270)	150 (75–360)	0.12	0.47
Some college	120 (70–225)	135 (75–240)	150 (75–300)	150 (80–300)	< 0.01	
College Graduate	120 (60–180)	100 (60–200)	120 (60–210)	125 (80–225)	0.04	
BMI						
Normal	140 (75–300)	135 (75–280)	150 (75–300)	175 (90–360)	0.03	
Overweight	140 (75–240)	140 (75–250)	140 (75–300)	150 (75–300)	0.11	0.55
Obese	120 (60–210)	120 (60–210)	120 (60–210)	140 (75–270)	< 0.01	

\* Respondents are from the following REACH communities: Charlotte, NC, Atlanta, GA, Nashville, TN, Charleston and Georgetown Counties, SC, Clark County, NV, and Kansas City, MO.

† To calculate the *P*-value for trend for median minutes of walking per week, we first created a new variable that dichotomized individual respondents as having a value of total minutes of walking per week that was either greater than the baseline (2002) median minutes of walking per week or less than or equal to the baseline (2002) median minutes of walking per week. We then used logistic regression to determine the *P*-value for trend with the new dichotomized variable of minutes of walking per week as the dependent variable and year as the independent variable.

‡ Interaction terms of demographic variables by year were created and entered into logistic regression models with the corresponding walking variable as the dependent variable to test for effect modification.

§ Among those who reported walking, total minutes of walking are not age-adjusted.

Generally, locally developed community-based interventions to increase physical activity, and specifically walking, among African Americans have had small sample sizes or have been restricted to small populations, such as individual churches (Whitt-Glover, 2008; Wilson, 2005; Wilcox, 2007; Yanek, 2001). Despite these limitations in power, studies have shown promising results related to the ability of community-based participatory interventions to increase walking among African Americans (Whitt-Glover, 2008; Wilson, 2005; Wilcox, 2007; Yanek, 2001). For example, Whitt-Glover and colleagues collaborated with pastors in North Carolina to develop a 3-month faith-based physical

activity pilot intervention to increase daily walking and moderate- and vigorous-intensity physical activity among sedentary black adults in the community (Whitt-Glover, 2008). The intervention consisted of group discussion sessions about physical activity, instructor-led physical activity sessions, and incentives to promote physical activity. Walking in this study was assessed in steps per day by using a pedometer. A total of 87 individuals participated in the pilot intervention and the researchers observed a statistically significant increase in steps walked/day from the baseline to the end of the intervention period. There were also significant increases in moderate- and vigorous-intensity physical activity among study participants. Another pilot study by Wilson and colleagues sought to increase walking among African American breast cancer survivors through an eight-week community based intervention that used pedometers, goal setting, and self-assessment (Wilson, 2005). A total of 22 African American breast cancer survivors participated in the intervention and the investigators found a significant increase in steps walked per day from baseline to the end of the intervention period. Zoellner and colleagues collaborated with community partners using methods of community-based participatory research (CBPR) to develop a 6 month pedometer intervention among African Americans in Mississippi. The intervention resulted in a significant increase in steps per day and self-reported minutes of walking per week among participants (Zoellner, 2010). The researchers credited the community-based nature of the intervention, specifically as it related to tailoring the intervention for the local community, as playing an important part in the success of the intervention to increase walking.

When interpreting the results of our study and comparing them to other research studies, it is important to note that the surveys were not conducted repeatedly in the same participants over the years. Independent samples were recruited from the communities in different years of surveys. The purpose of our analysis was to evaluate community-level effects of these targeted interventions in REACH funded communities where several activities were undertaken to reduce racial disparities in diabetes and/or cardiovascular disease. REACH was not designed as a walking intervention trial; physical activity was only one of the education and intervention components of the project. Building capacity by forming or expanding a community-based coalition was the common foundation of the REACH project (Tucker, 2006). This model helped mobilize communities and created a sense of ownership, empowerment, and synergy of action. REACH has created stronger, more resilient communities capable of sustaining various health-improvement efforts. Although different communities selected different diseases and conditions as their priority areas, the overall goal was the same: to build a healthy community through overall increase in knowledge and motivation to live a healthy lifestyle.

Unlike an intervention trial, this study did not have control communities. However, BRFSS data in general populations from 2001-2005 indicate that there was no change in the prevalence of adults participating in recommended moderate or vigorous physical activity in North Carolina, Tennessee, and South Carolina and small increases in Georgia (39.8% in 2001; 42% in 2005), Nevada (49.8% in 2001; 50.7% in 2005), and Missouri (39.6% in 2001; 46.4% in 2005).

The findings in our study are subject to several limitations. First, as previously mentioned, respondents to the REACH Risk Factor Survey may or may not have completed the walking intervention, and there are no available data to determine whether they participated in the interventions. Although REACH interventions are multi-factorial and consist of several community-level components, they do not exist in controlled experimental environments, and other factors could have contributed to increased levels of walking over time. Second, by using telephone sampling, the REACH Risk Factor Survey may have missed certain segments of the target population, and people who have home telephones may differ from people without home telephones in a

variety of ways (Blumberg, 2006). Third, because the REACH programs were tailored to be specific to their individual communities, the walking interventions varied in the six communities with respect to program components, social marketing techniques, staff, ease of implementation, and other factors. Our data source does not allow us to consider these differences. However, a major component of the larger REACH initiative allows individual communities to be flexible and tailor programs to their specific audiences as a novel approach to eliminating health disparities.

Our study also has several unique strengths. It includes a large population of African American adults in six different communities. To our knowledge, this is the first study to analyze changes in walking among African Americans in such a large and geographically diverse population after the implementation of a large-scale community-based intervention. Further, we present 4 years of data for the calculation of trends in walking over time. In addition, we have evaluated three different patterns of walking. Our results suggest that community-based walking interventions may play a role in encouraging walking initiation and regular walking among African Americans. This study will add to the literature of community-based physical activity interventions by providing information about walking in a large sample across different communities. In addition, we describe characteristics of African Americans who engage in walking as a form of physical activity, which may be useful to researchers and practitioners who are developing interventions. Finally, we have attempted to evaluate the population-level effects of a community-based program designed to increase physical activity among African Americans (CDC, 2007).

In conclusion, our findings suggest that large-scale community-based walking interventions may encourage walking initiation and participation among African Americans. Further research is needed to determine how community-based interventions impact walking and whether observed increases in walking are associated with a corresponding decrease in chronic disease risk. Researchers or communities seeking to implement community-based participatory walking interventions in African American communities should consult the Guide to Community Preventive Services (CDC, 2005) for suggested evidence-based strategies for increasing physical activity; these strategies should be adapted to be culturally appropriate.

The individual community sites included in this analysis, and other communities conducting similar interventions, should continue to evaluate the success of their programs, specifically for acceptability of the interventions among community residents, adherence to the suggested intervention components, and the impact on chronic disease health outcomes. Studies of this nature may assist to increase the effectiveness of community-based walking interventions.

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