ORIGINAL REPORTS: OBESITY

FACTORS RELATED TO PHYSICAL ACTIVITY AND RECOMMENDED INTERVENTION STRATEGIES AS TOLD BY MIDLIFE AND OLDER AFRICAN AMERICAN MEN

Objective: Few interventions have targeted preventive health behaviors of midlife and older African American (AA) men. This study derived pertinent information with personal interviews to develop a tailored physical activity (PA) intervention for AA men ≥45 years of age.

Methods: Participants were 49 AA men aged 45–88 years. Personal interviews ascertained PA barriers, enablers, and preferences, and components that would render a PA program appropriate for and appealing to AA men of similar ages. Taped interviews were transcribed and organized in NVivo for analysis. Common themes were identified by multiple research staff.

Results: Most often cited barriers to PA included time constraints, lack of social support, low motivation, poor access, and factors related to chronic conditions and aging. Although men preferred traditional forms of sports and exercise when younger, they learned to adapt the intensity and duration as they aged, and walking was viewed as an acceptable alternative. Recommended strategies for a community-based PA program were building social support, camaraderie, and accountability among men through healthy/friendly competition and social interaction, using accessible community facilities, and including education about men's and aging-related health issues.

Conclusion: The qualitative research process yielded new and insightful information that can be used to develop a tailored PA and health program for midlife and older AA men. (*Ethn Dis.* 2011;21(3):261–267)

Key Words: Exercise, Black Males, Barriers, Preferences

From Prevention Research Center, Department of Exercise Science (SPH, CER, ELB, SW) and Department of Health Promotion, Education, and Behavior (DEB), University of South Carolina.

Address correspondence to Steven P. Hooker, PhD; Prevention Research Center; University of South Carolina; 921 Assembly Street; Columbia, SC 29208; 803.777. 0266; 803.777.9007 (fax); shooker@mailbox. sc.edu

Steven P. Hooker, PhD; Sara Wilcox, PhD; Carol E. Rheaume, MSPH; Ericka L. Burroughs, MPH; Daniela B. Friedman, PhD

INTRODUCTION

In the United States, African American (AA) men are at the highest risk for early morbidity and mortality with an average lifespan of eight to nine years less than that of White men and women and AA women.^{1,2} Correspondingly, AA men have significantly greater odds than White men for coronary heart disease, hypertension, stroke, cancer, and diabetes. 1,3,4 The precise causes of death and health disparities observed for AA men remain unknown, although differences in health behaviors such as smoking, alcohol use, fruit and vegetable consumption, and physical activity (PA) partially account for the results.^{5,6} Due to the vast array of physical and mental health benefits potentially derived,7 PA should be a priority in community health promotion efforts designed for AA men.

In addition to the racial/ethnic disparity in PA, there is also a substantial decline in PA with aging. However, findings for older adults indicate meager participation by older men in PA interventions with women comprising 70–100% of all participants. Furthermore, only some involve few, if any, AA men. Thus, a dire need exists to determine facilitators and barriers to participation in community-based PA programs for a very vulnerable population - midlife and older AA men. 9,11,12

The purpose of this initial phase of a larger study was to 1) ascertain perceptions, preferences, barriers, and facilitators pertaining to PA in AA men aged 45–88 years, and 2) identify intervention strategies to successfully engage

older AA men in a community-based PA intervention.

METHODS

The aim of the larger project was to test feasibility and initial efficacy of a tailored PA intervention for midlife and older AA men. To develop such an intervention, an initial qualitative research phase was implemented. A Community Advisory Board (CAB) assisted with developing interview questions, identifying recruitment strategies, and interpreting findings. The CAB members included five AA men from various professions and four academics with expertise in PA, health communication, community-based research, and men's health.

Recruitment strategies included targeted mailings and announcements to county departments on aging, senior centers, senior residential communities, churches, and participants in previous research projects; listserv postings to University employees; mass communication and word of mouth. Eligibility criteria were being an AA male (self-identified) aged 45–88 years. Based on

The aim of the larger project was to test feasibility and initial efficacy of a tailored physical activity intervention for midlife and older AA men.

self-report PA questions from the Behavioral Risk Factor Surveillance System, participants were categorized as either meeting or not meeting PA recommendations. ^{13,14}

Prior to the interview, each interviewee completed an informed consent form and a self-report questionnaire to obtain information pertaining to personal demographics, perceived health status, medical history, and height and weight without shoes. Perceived health status was assessed with a standard question used extensively and known to be strongly associated with mortality and future health care. 15 Participants were asked if they had ever been told by a health care professional if they had diabetes, hypertension, coronary heart disease, a stroke, a heart attack, arthritis or related condition, or osteoporosis. They could also indicate if they had any other health condition not included above.

Interviews were conducted within these groups: 1) AA men, aged 45-64 years, meeting PA recommendations (midlife active, n=17); 2) AA men, aged 45-64, not meeting PA recommendations (midlife inactive, n=12); 3) AA men, aged 65-88, meeting PA recommendations (older active, n=10); and 4) AA men, aged 65-88, not meeting PA recommendations (older inactive, n=10). The interview guide contained questions pertaining to general health, masculine identity, PA definitions (ie, perceptions of what constitutes physical activity vs exercise), PA preferences, PA and health benefits, PA barriers and facilitators, and PA programming.

Data Analysis

Each interview was taped and transcribed verbatim. Staff reviewed transcripts and made necessary corrections. All interview transcripts were imported into QSR International NVivo₇ for qualitative analyses. The three interviewers used the interview guide as an initial framework to develop a coding

schema. Using this schema, each coded the same interview from one participant, and then reviewed codes and modified the schema as needed. This approach was completed with four additional interviews prior to finalizing the coding schema. Two other staff members were then trained on the schema and coding process. Inter-rater agreement of at least 85% between coders was considered an acceptable threshold for coding consistency. Coders discussed any discordant codes until 100% coding agreement was reached.

Data were scrutinized to discover saturation of ideas and recurrent patterns of similar and different meanings and expressions. Major themes were abstracted from the data. At all times, findings were traced back to raw data to ensure credibility, recurrent patterning, and confirmation of data and analysis. The strength of each theme was reviewed within groups to identify issues either relevant across, or specific to, age or PA groups.

RESULTS

Forty-nine AA men were interviewed. Overall, participants were married, had a high school or college education, had an annual income of ≥\$50,000, were overweight or obese, reported the existence of at least one chronic medical condition, and self-rated their health as good to excellent (Table 1). Unless otherwise noted, there were no differences in responses by AA men of varying PA level or age.

A majority of the men indicated they preferred walking and overwhelmingly depicted walking as a good form of physical activity.

Preferences

A majority of the men indicated they preferred walking and overwhelmingly depicted walking as a good form of PA. However, most of the men viewed walking as a casual activity and not as exercise per se. Commonly mentioned were walking the dog, to and from a destination, in the neighborhood, or at a park or beach. Preferred activities mentioned less often were resistance training, biking, basketball, football, running, gardening, and yard work. Responses indicated that competitive or high intensity activities were to be avoided or done at a lower intensity and for shorter durations as men aged.

Benefits

Frequently discussed physical benefits included improving muscle tone, strength, stamina, sexual performance, and physical appearance. Reported medical benefits were controlling blood pressure, regulating diabetes, improving the heart and circulation, increasing lung capacity, and strengthening the immune system. Often mentioned quality of life benefits consisted of being healthier, feeling better/good, living longer, and having more energy.

Barriers

Nearly every participant discussed the presence of physical ailments and chronic conditions limiting their capacity or motivation for PA (eg, diabetes, cardiovascular disease, arthritis, and obesity). Other reasons for declining involvement in certain activities included general aging, fear of injury, diminished fitness, less energy, and increased soreness after PA.

Men frequently mentioned difficulty setting time aside for PA due to conflicts with work, family, and other responsibilities. Phrases such as "job is interfering", "this crazy fast paced world", "you really have to find the time", and "so many other obligations that one

Table 1. Participant demographics

		45–64 years		≥65 years				
		Meets PA Rec.* (n=17)	Does Not Meet PA Rec. (n=12)	Meets PA Rec (n=10)	Does Not Meet PA rec (n=10)	Total (n=49)	P (age)	P (PA)
Age (years)							<.0001	.82
	Mean	54.1	51.9	74.9	72.3	61.5		
	SD	5.7	4.6	5.0	8.1	11.7		
Marital status							.27	.86
Married/partnered	%	65	67	80	80	71		
Not married	%	35	33	20	20	29		
Education							.13	.47
High School/GED or lower	%	24	25	60	30	33		
Some college or college	%	77	75	40	70	67		
graduate								
Employment status							.001	.14
Employed	%	47	83	10	20	43		
Unemployed	%	53	17	90	80	57		
Income	,						.56	.38
≤ \$29,999	%	31	17	50	25	30		
\$30,000–59,999	%	25	33	30	25	28		
≥\$60,000	%	44	50	20	50	41		
General health	,			-			.21	.70
Excellent/very good	%	59	64	50	33	53		
Good/fair	%	41	36	50	67	47		
BMI (kg/m²)	,,	• •	50		<i>.</i>	••	.73	.58
	Mean	28.4	28.4	26.3	28.2	27.9		
	SD	4.4	5.1	4.2	2.9	4.2		
Normal (18.5–24.9)	%	24	33	50	10	29		
Overweight (25–29.9)	%	53	42	30	80	51		
Obese (≥30)	%	24	25	20	10	20		
Health conditions	•							
Diabetes	%	40	8	40	40	32	.31	.20
High blood pressure	%	59	33	90	50	57	.13	.04
Angina	%	6	17	20	10	13	.66	.83
Arthritis	%	18	33	50	20	29	.41	.86
Other	%	7	33	33	56	29	.06	.05

^{* ≥150} min/wk of self-reported moderate-vigorous intensity physical activity(PA)= meets recommendation; <150 min/wk of self-reported moderate-vigorous intensity PA = does not meet recommendation.

has" reflected the perceived time constraints in the men's lives.

Lack of motivation, described as being lazy, making excuses, and feeling more comfortable in sedentary activities, was also a barrier to PA. One man commented that men prefer to "watch television, but they won't go the extra mile to do any physical exercise." Another mentioned that it's "more comfortable if you slap down in a chair ... it becomes a habit and your body really calls for it." The lack of motivation was summarized by one participant who labeled it as the "ugliness of being lazy", and another who commented that "men are greater starters, but poor finishers."

The men frequently identified lack of support from their spouse, partner, children, or friends. For example, men stated they heard comments such as "you're too old to work out", "the weather is too hot", or "you don't need to work out, you look good." Feeling pressure to attend to family responsibilities rather than devoting time to PA was mentioned often. One man stated, "... if you're the provider ... you've got to address everybody else's needs. So sometimes yours go without attention because you're being everything for everybody else."

Lack of access was another barrier described as costs associated with a gym or program, limited places for PA, and inconvenience (eg, "if I've got to drive ...

then I won't do it"). Many participants believed they need a gym to engage in PA, and this belief could be a barrier if such a facility is not accessible. Conversely, men expressed the need for a gym because they will not exercise at home due to distractions. For example, "... that's what you went to the gym for is to work out ... whereas if it's at the house, you'll get around to it maybe and unfortunately most people never get around to it."

Intervention Strategies

Recommended Physical Activities

Walking was the single-most commonly recommended PA. Men de-

scribed walking as an activity everyone could do and one that provided varying levels of intensity. One could start at a low or leisurely intensity and progress to a higher intensity, including advancing to running. In this way, walking was seen as a stepping stone to more intense activities by some of the men. For example, "walking is sort of safe in the sense that you can start at a pace that your body can adjust to and you can escalate to a higher level without there being a lot of recourse."

After walking, the most common activities mentioned were sports-related (ie, tennis, golf, basketball, baseball/ softball, bowling, and volleyball). Older active men were more likely than other groups to recommend sports. Mentioned infrequently were swimming, biking (mostly recommended by inactive men), resistance training (mentioned less by older inactive men), and stretching.

Locations/Settings for PA

The most commonly recommended location for a PA program was a gym or recreation center. Men's rationales were that gyms provided the best equipment, gave men structure, provided protection from inclement weather, allowed for cross-training, were commonly available, and allowed men to be focused. A small number of participants stated that gyms can be "intimidating" to inactive people or too expensive.

The next most commonly recommended setting was church. Men noted that many churches have family life centers, gyms, outdoor fields, or general spaces for PA. This location was also recommended because many AAs regularly go there. For example, "And I also think a good way to get African American men more involved is through the churches because a lot of Black men go to church and ... I think that's where you can get your network." Another stated, "... up until the ... late'70's, mid '80's the church was always the center of the community.

Everything that you wanted to do, you did it at the church; church socials, church dances, breakfasts, and all those kinds of things so, I would probably like to see it done in the family life center of the church." However, limitations with church-based programs were noted, including poor attendance at programs, the overuse of churches for health programs, being unable to reach those not attending church, and concerns about women infringing on men's privacy.

Local parks were also a recommended location (mentioned more often by active men). Men often described specific parks in their community, suggesting that convenience and proximity were important. For example, "It's [park] there for the community, and if you live near it, you know, you can go to it." Parks were also appealing because they already existed and would not require additional costs. Locations recommended by just a few men were neighborhoods, schools (especially by older inactive men), home, and trails/tracks.

Making the Program Appealing and Fun

The vast majority of men referred to a program that cultivated camaraderie and fellowship. Men mentioned the need to have a partner to be active with, whether a spouse, child, or friend. However, most favored being in a program with only other men with opportunities for positive social support and social interaction. The quotes below highlight this viewpoint.

"...no offense to women but, ... it takes another male to connect with another male to get him to understand the importance that it's something we can do together."

"I think when you get guys together where they can enjoy themselves and have that camaraderie ... That's why when you see them playing checkers or playing cards or whatever they kind of like that kind of team spirit "

Competition was mentioned as a feature that would make the program appealing. Integrating team sports, games, and tournaments was proposed by some of the men. Competition could also be implemented between churches, worksites, or other groups. Terms associated with competition were ego, team spirit, challenging, achieving success, and showing off. A few men also stated that participants should be encouraged to compete within themselves relating this to self-motivation and setting goals.

Several participants commented on the need for sex and cultural relevance. A strong feature of this theme was that the program needed to be specifically for AA men, and one that created a sense of identity and ownership. One participant captured this by stating the program should employ the FUBU concept (ie, for us, by us).

Many men suggested the program go beyond PA education and include other elements. As one man commented, the program should incorporate "the ABCs of health, fitness, and nutrition." Most men exhorted that nutrition and healthy eating should be an essential program component. Other men remarked on the necessity to provide information on the aging process and types of conditions men may encounter if they ignore their health.

DISCUSSION

This study reveals information about the perceived preferences, barriers, benefits, and intervention strategies for PA of midlife and older AA men; a population at high risk for sedentary lifestyle, chronic conditions, and early mortality, yet vastly underrepresented in PA research. Insights from this study are valuable for the development of a customized PA intervention for these men. Indeed, the tailoring of PA and health promotion interventions to population subgroups has been strongly

recommended to increase the likelihood of successful initiation and maintenance of behavior change. 12,17

The majority of responses pertaining to barriers reflected intrapersonal and interpersonal issues. This could be due to the wording of the questions, as well as the main barriers that older AA men perceive. The barriers of time constraints, lack of social support, limited access, and poor motivation are consistent with important challenges to being physically active noted by AA adults of various ages, ^{18–23} as well as other midlife and older adults. ^{21,24–26}

Several strategies to address barriers surfaced. Although previous studies have shown social support to be important for women, including AA women,²⁷ the emergence of this theme among the AA men in our sample was striking. Themes of camaraderie, healthy/friendly competition, building program identity, incorporating social time, and facilitating program ownership reflected the notion of social engagement, especially with other men. Although lack of social support from spouse was mentioned as a barrier, the inclusion of spouses within a PA program for midlife and older AA men was not universally favored. Many men stated that spouse involvement within the program should be carefully considered. For example, including spouses in healthy cooking demonstrations was acceptable, but not during educational sessions on men's health topics.

A multitude of comments related to healthy/friendly competition were identified. This theme has been presented in only two other studies involving AA men and women in focus groups to discuss factors influencing exercise/PA participation. However, the opportunity to be involved with a personal challenge, team work, processes requiring accountability, and recognition for achievement were very appealing to the men in this study. These elements appear to be extensions of the men's previous experiences in team sports they

engaged in when younger. Nonetheless, the integration of programmatic elements that foster competition both within an individual and between participants should be done with caution and input from participants to verify that they are acceptable and not intimidating.

Providing a safe setting for AA men to learn and support one another on a myriad of health concerns is strongly advocated, ^{28–32} and comments from the participants in this study confirm this recommendation. Although the men were positive about providing education on how to initiate and maintain PA, they were also adamant that nutrition and men's health topics should also be included. As midlife and older AA men appear amenable to interventions that simultaneously target PA plus additional health behaviors, this area warrants further investigation.

Similar to other samples of this age, chronic conditions and reduced functional capacity were barriers to PA. 20,21,24,26,33,34 Men recommended reducing the duration and intensity of vigorous physical activities to adapt them for their age. The men also discussed the preference for walking to combat aging-related conditions. Although the men stated that walking was "good", they viewed walking as something other than exercise, as well as only a starter activity for sedentary men. Most of the men had a history of engaging in more vigorous PA and suggested that a PA program should go beyond walking to incorporate such activities, albeit with limitations. Previous work with AA men indicated that, when younger, AA men rely on sports and athletics for social mobility or social leverage.³³ This may partially explain the emphasis on more vigorous types of PA being frequently mentioned by our participants.

The most oft cited settings for a PA program were a gym, community recreation center, or church wellness center. These settings were recom-

mended in relation to accessibility and familiarity for AA men. These facilities have resources that may be appealing to AA men including resistance training equipment, treadmills, walking tracks, and basketball courts. Many health promotion programs, including several focused on PA and nutrition, have been offered to AA adults via faith-based institutions. For the most part, these have been specifically designed for AA women^{35–38} or not attended by many AA men.^{39–43} Reasons for poor attendance by AA men in church-based programs have not been fully explored, but the men in this study provided suggestions. These included men not regularly attending church, being concerned that women would invade their privacy, and being desensitized due to the multitude of programs offered through some churches. The potential role of churches as a suitable venue for PA programming for AA men needs further study.

Limitations to the present study should be noted. By nature, the sample size was small, self-selected, and from one geographic location. The majority of the participants were married, welleducated, and of middle to upper income. However, it is not the intent of qualitative research to generalize findings to other populations. Also, PA level was determined by self-report which may have led to some misclassification due to recall bias or social desirability. 44,45 However, very few responses varied between age and PA groups, and those that did were primarily due to age. Despite these limitations, this study provides excellent insights into factors influencing the PA of midlife and older AA men and sets the stage to develop a tailored intervention to promote PA and health in this high-risk population.

CONCLUSION

Midlife and older AA men face barriers to PA similar to other adults

PHYSICAL ACTIVITY AND AFRICAN AMERICAN MEN - Hooker et al

of their age including time constraints, lack of social support, low motivation, poor access, and factors related to chronic conditions and aging. Although the men preferred more traditional forms of sports and exercise they performed when younger, they learned to adapt the intensity and duration as they became older, and remarked that walking was an acceptable alternative. Strategies to employ in a communitybased PA program to attract and aid midlife and older AA men in increasing their PA level included building social support, camaraderie, and accountability through healthy/friendly competition and social interactions, using accessible community facilities, and including education about men's and aging-related health issues.

ACKNOWLEDGMENTS

This research was supported by the National Institute on Aging/National Institutes of Health grant #1R21AG028674. The authors are grateful to the community advisory board and participants for their involvement and support. We thank Dr. Will Courtenay and Dr. Bettina Beech for expert consultation. We acknowledge Dr. Meghan Baruth and Mary Ellen Suitt for assistance with the qualitative data analysis, and Jorge Banda for helping with manuscript preparation.

REFERENCES

- Hoyert D, Arias E, Smith B, Murphy S, Kochanek K. Deaths: final data for 1999. Natl Vital Stat Rep. 2001;49(8):1–113.
- Calasanti T. Feminist gerontology and old men. J Gerontol B Psychol Sci Soc Sci. 2004;59B:S302–S314.
- Eberhardt MS, Ingram DD, Makuc DM, et al. Urban and Rural Health Chartbook. Health, United States, 2001. Hyattsville, Md: National Center for Health Statistics; 2001.
- Ries LA, Wingo PA, Miller DS, et al. The annual report to the nation on the status of cancer, 1973–1997, with a special section on colorectal cancer. *Cancer*. 2000;88(10):2398– 2424.
- 5. Hummer R, Benjamins M, Rogers R. Racial and ethnic disparities in health and mortality among the U.S. elderly population. In: Anderson N, Bulatao R, Cohen B, eds. Critical Perspectives on Racial and Ethnic Differences in Health in Late Life. Washington, DC: Nation-

- al Research Council, The National Academy of Press; 2004.
- International Longevity Center USA. Promoting Men's Health: Addressing Barriers to Healthy Lifestyle and Preventive Health Care. New York, NY: International Longevity Center - USA; 2004.
- U.S. Department of Health and Human Services. Physical Activity and Health: A Report of the Surgeon General. Atlanta, Ga: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion; 1996.
- van der Bij A, Laurant M, Wensing M. Effectiveness of physical activity interventions for older adults: a review. Am J Prev Med. 2002;22:120–133.
- Paschal A, Lewis R, Martin A, Dennis-Shipp D, Simpson D. Baseline assessment of the health status and health behaviors of African Americans participating in the Activities-for-Life program: a community-based health intervention program. J Community Health. 2004;29:305–318.
- Whitt-Glover MC, Kumanyika SK. Systematic review of interventions to increase physical activity and physical fitness in African-Americans. Am J Health Promot. 2009;23(6):S33–56.
- Belza B, Walwick J, Shiu-Thornton S, Schwartz S, Taylor M, LoGerfo J. Older adult perspectives on physical activity and exercise: voices from multiple cultures. *Prev Chronic Dis.* 2004;1(4):A09.
- Brawley LR, Rejeski WJ, King AC. Promoting physical activity for older adults: the challenges for changing behavior. *Am J Prev Med.* 2003;25(3 Suppl 2):172–183.
- Centers for Disease Control and Prevention.
 Quick Stats: Percentage of Older Adults Who Engaged in Regular Leisure-Time Physical Activity, by Age Group and Sex – United States, 200-2003. MMWR Morb Mortal Wkly Rep. 2006;55(28):779.
- Pate R, Pratt M, Blair S, et al. Physical Activity and Public Health: A Recommendation from the Centers for Disease Control and Prevention and the American College of Sports Medicine. *JAMA*. 1995;273:402–407.
- Jylha M. What is self-rated health and why does it predict mortality? Towards a unified conceptual model. Soc Sci Med. Aug 2009;69(3):307–316.
- Strauss A, Corbin J. Basics of Qualitative Research. Thousand Oaks, Ca: Sage Publications; 1990.
- Resnicow K, Baranowski T, Ahluwalia JS, Braithwaite RL. Cultural sensitivity in public health: defined and demystified. *Ethn Dis*. 1999;9(1):10–21.
- 18. Van Duyn MA, McCrae T, Wingrove BK, et al. Adapting evidence-based strategies to

- increase physical activity among African Americans, Hispanics, Hmong, and Native Hawaiians: a social marketing approach. *Prev Chronic Dis.* 2007;4(4):A102.
- Carter-Nolan PL, Adams-Campbell LL, Williams J. Recruitment strategies for Black women at risk for noninsulin-dependent diabetes mellitus into exercise protocols: a qualitative assessment. J Natl Med Assoc. 1996;88(9):558–562.
- Walcott-McQuigg JA, Prohaska TR. Factors influencing participation of African American elders in exercise behavior. *Public Health Nurs*. 2001;18(3):194–203.
- Eyler AA, Baker E, Cromer L, King AC, Brownson RC, Donatelle RJ. Physical activity and minority women: a qualitative study. *Health Educ Behav*. 1998;25(5):640–652.
- Wilcox S, Richter DL, Henderson KA, Greaney ML, Ainsworth BE. Perceptions of physical activity and personal barriers and enablers in African-American women. *Ethm Dis.* 2002;12(3):353–362.
- Wilcox S, Oberrecht L, Bopp M, Kammermann SK, McElmurray CT. A qualitative study of exercise in older African American and white women in rural South Carolina: perceptions, barriers, and motivations. J Women Aging. 2005;17(1–2):37–53.
- Juarbe T, Turok XP, Perez-Stable EJ. Perceived benefits and barriers to physical activity among older Latina women. West J Nurs Res. 2002;24(8):868–886.
- Kowal J, Fortier MS. Physical activity behavior change in middle-aged and older women: the role of barriers and of environmental characteristics. *J Behav Med.* 2007;30(3):233–242.
- Booth M, Bauman A, Owen N. Perceived barriers to physical activity among older Australians. J Aging Phys Act. 2002;10: 271–280.
- Vrazel J, Saunders RP, Wilcox S. An overview and proposed framework of social-environmental influences on the physical-activity behavior of women. Am J Health Promot. 2008;23(1):2–12.
- Williams DR. The health of men: structured inequalities and opportunities. Am J Public Health. 2003;93(5):724–731.
- Satcher D. Overlooked and underserved: improving the health of men of color. Am J Public Health. 2003;93(5):707–709.
- Allen JD, Kennedy M, Wilson-Glover A, Gilligan TD. African-American men's perceptions about prostate cancer: implications for designing educational interventions. Soc Sci Med. 2007;64(11):2189–2200.
- Plowden KO, Young AE. Sociostructural factors influencing health behaviors of urban African-American men. J Natl Black Nurses Assoc. 2003;14(1):45–51.

PHYSICAL ACTIVITY AND AFRICAN AMERICAN MEN - Hooker et al

- 32. Royster M. Hey brotha', how's your health? a community-based assessment of the health of African American men. 2001;129th Annual Meeting of the American Public Health Association. Atlanta, GA.
- Airhihenbuwa CO, Kumanyika S, Agurs TD, Lowe A. Perceptions and beliefs about exercise, rest, and health among African-Americans. Am J Health Promot. 1995;9(6):426–429.
- Belza B, Walwick J, Shiu-Thornton S, Schwartz S, Taylor M, LoGerfo J. Older adult perspectives on physical activity and exercise: voices from multiple cultures. *Prev Chronic Dis.* 2004;1(4):A09.
- 35. Fitzgibbon ML, Stolley MR, Ganschow P, et al. Results of a faith-based weight loss intervention for black women. *J Natl Med Assoc.* 2005;97(10):1393–1402.
- McNabb W, Quinn M, Kerver J, Cook S, Karrison T. The PATHWAYS church-based weight loss program for urban African-American women at risk for diabetes. *Diabetes Care*. 1997;20(10):1518–1523.
- 37. Yanek LR, Becker DM, Moy TF, Gittelsohn J, Koffman DM. Project Joy: faith based cardio-

- vascular health promotion for African American women. *Public Health Rep*, 2001;116 Suppl 1:68–81.
- Young DR, Stewart KJ. A church-based physical activity intervention for African American women. Fam Community Health. 2006;29(2):103–117.
- Resnicow K, Campbell MK, Carr C, et al. Body and soul. A dietary intervention conducted through African-American churches. Am J Prev Med. 2004;27(2):97–105.
- Resnicow K, Jackson A, Blissett D, et al. Results of the healthy body healthy spirit trial. Health Psychol. 2005;24(4):339–348.
- Whitt-Glover MC, Hogan PE, Lang W, Heil DP. Pilot study of a faith-based physical activity program among sedentary blacks. *Prev Chronic Dis.* 2008;5(2):A51.
- 42. Wilcox S, Laken M, Bopp M, et al. Increasing physical activity among church members: community-based participatory research. *Am J Prev Med.* 2007;32(2):131–138.
- Bopp M, Lattimore D, Wilcox S, et al. Understanding physical activity participation in members of an African American church: a

- qualitative study. *Health Educ Res.* 2007;22(6): 815–826.
- Adams SA, Matthews CE, Ebbeling CB, et al. The Effect of Social Desirability and Social Approval on Self-Reports of Physical Activity. Am J Epidemiol. 2005;161(4):389–398.
- Welk GJ, Morss G, Church T, Differding J. Laboratory calibration of the Biotrainer and Actitrac activity monitors. *Med Sci Sports Exerc.* 2002;34(5):S140.

AUTHOR CONTRIBUTIONS

Design concept of study: Hooker, Wilcox, Rheaume

Acquisition of data: Hooker, Rheaume, Burroughs

Data analysis and interpretation: Hooker, Wilcox, Rheaume, Burroughs, Friedman Manuscript draft: Hooker, Wilcox, Rheaume, Burroughs, Friedman Statistical expertise: Hooker, Wilcox Acquisition of funding: Hooker, Wilcox Administrative: Burroughs Supervision: Hooker, Wilcox