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# Exploring the feasibility of a physical activity intervention for midlife African American men

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## Abstract

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**Background.** This study tested the initial efficacy of implementing a physical activity (PA) behavior change intervention for midlife African American (AA) men. **Methods.** Intervention components were based on information gathered during formative research preceding the intervention. Eligible participants were underactive AA men ages 45–66 years. In a quasi-experimental pre–post design, participants attended 90-min program sessions twice weekly for 8 weeks. Session topics specific to PA included overcoming barriers, gaining social support, setting goals, tracking progress and integrating into one’s lifestyle. Participants were assigned to teams to facilitate group discussion, problem solving, accountability and camaraderie. **Results.** 25 AA men (mean age =  $54.7 \pm 4.8$  years) completed the intervention. After 8 weeks, significant ( $P < 0.05$ ) positive changes were observed for moderate to vigorous-intensity PA ( $+7.3$  hour week<sup>-1</sup>) and overall PA ( $+9.4$  hour week<sup>-1</sup>), self-efficacy for PA ( $+12\%$ ), social support for PA from family ( $+28\%$ ) and friends ( $+53\%$ ), self-regulation for planning ( $+33\%$ ) and goal setting ( $+48\%$ ) and each fitness component ( $+9$  to  $+144\%$ ). Based on a post-intervention satisfaction survey, participants rated the program very positively.

**Conclusion.** These positive results attest to the feasibility of successfully engaging midlife AA men in a tailored PA behavior change program.

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## Introduction

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The need to promote physical activity (PA) in midlife (45–64 years) and older ( $\geq 65$  years) African American (AA) men is paramount because they suffer much higher rates of acute and chronic physical and mental conditions that can be ameliorated by regular PA [1, 2]. Quite alarming, though, is the lack of focus on AA men of all ages in several obesity, health disparities, PA and prevention reviews and essays published in recent years [3–8]. Albeit AA women are also at high risk for many health disparities, the dismal inclusion of AA men in PA intervention research is perplexing. A recent systematic review of interventions to increase PA and physical fitness in AA adults included 29 qualified studies, only one of which included solely AA men [9]. However, that study used a clinic-based exercise training protocol to enhance aerobic fitness and was not an intervention focused on promoting change in PA via behavior modification [10]. Thus, there remains a large gap in our ability to translate evidence-based programs into practice for this vulnerable population.

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To help fill this notable gap in knowledge, our research team initiated a process to develop and evaluate a PA intervention designed to be sensitive to the needs and preferences of midlife AA men. A rigorous formative research phase identified recruitment strategies [11], PA attitudes, beliefs, barriers and enablers and acceptable PA program components for midlife AA men [12, 13]. This paper describes the outcomes of the pilot project founded on results of the formative research phase and implemented to test the feasibility of delivering a gender and culturally tailored PA intervention for AA men ages 45–66 years.

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## Methods

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A quasi-experimental pre–post design was used with assessments at baseline and 8 weeks. The study was approved by the University of South Carolina Institutional Review Board and written informed consent was provided by all participants. The intervention was implemented from May through July 2008.

### Sample

Inclusion criteria were inactive or irregularly active (i.e. not meeting current PA guidelines for American adults [14]) AA men 45–66 years of age without any contraindications to mild- to moderate-intensity PA. Participants were recruited May to June, 2008, through local media, a university AA faculty listserv, flyers and announcements in community settings (e.g. barbershops, churches), mailings to senior residential facilities, a wellness center’s membership roster and word of mouth. The recruitment goal was 30–35 participants based on the sample size from a previously published first-generation PA behavior change study [15] and available physical space. Sixty-three persons responded to recruitment efforts with 53 being deemed eligible. Thirty-eight eligible men agreed to participate in the program and 31 of those appeared in person to complete pre-intervention assessments and formally consented to participate in the study. Due mostly to time conflicts, four men

who completed pre-intervention assessments never attended any of the group sessions resulting in 27 study participants.

### Intervention

The primary theoretical foundation of the intervention was social cognitive theory [16], which has been successfully applied to PA behavior change [17]. Intervention components were derived from prior formative research involving interviews with 49 older AA men [12, 13]. Group-sessions mediated by two trained facilitators were conducted twice per week for 90 min per session for 8 weeks with session format and content adapted from previously conducted research [18, 19].

#### *Standard intervention elements*

Session content included benefits of PA, overcoming barriers to being active (e.g. time constraints, lack of social support, low motivation, poor access to PA resources, factors related to chronic conditions and aging), utilizing social support for PA, goal setting, self-monitoring, fitting PA into a daily routine, remaining active during high-risk times and PA maintenance.

#### *Tailored cultural and gender intervention elements*

Components integrated into the program based on formative research included

*Responsibility:* The intervention was tailored to participants based on the traditional views of masculine identity and gender role perspectives revealed during prior interviews with midlife AA men. As such, the concepts of responsibility, stress management and relapse prevention were integrated into group sessions. A community service project was also instituted to help fulfill the aspect of ‘giving back’ that emerged during the formative research phase.

*Accessibility/integration with existing services:* The intervention was conducted in partnership with a city-managed wellness center located in a redeveloped area adjacent to a neighborhood with a 100% AA population.

*Incorporate social time.* Small and large group-based processes were used to promote camaraderie and social interaction among the men.

*Healthy/Friendly competition.* Teams with 4–5 participants each were randomly organized. Team members reported to one another on weekly progress toward previously identified goals. Based on this information, a weekly ‘Most Valuable Person’ for each team was selected and publicly recognized, thereby providing social models for participants. Each week, research staff shared information among the teams regarding team member attendance and goal achievement to spur friendly competition.

*Create program identity/ownership.* This was accomplished with program t-shirts, team affiliations and several organized group activities.

Research staff helped each participant establish an initial overall PA goal (e.g. accumulating 150 min week<sup>-1</sup> of moderate- intensity PA) and weekly goals established to foster gradual progress. These individualized goals were recorded on a PA log that was completed daily by the participants, reviewed each week and modified as needed. Only brief PA demonstrations on stretching, resistance training, and brisk walking were provided during the program. Thus, the men completed the vast majority of their desired PA outside of the group sessions.

## Measures

At baseline and posttest (8 weeks), participants completed a series of assessments in the community wellness center. Standing height and body weight were assessed with a portable stadiometer and calibrated digital scale, respectively. Lower-body leg strength (chair stand test) and flexibility (chair sit-and-reach test) were assessed [20–22]. The Rockport Fitness (1 mile) Walking test conducted on an indoor track was used to measure aerobic fitness [23]. Participants completed the CHAMPS PA Questionnaire for Older Adults to measure PA in terms of hours per week of total and moderate-vigorous PA (MVPA) [24, 25], Social support [26], self-efficacy [27] and self-regulation [28] for PA were assessed. At posttest, a 14-item survey adapted from a previous study [29] was used to gauge participant satisfaction with the program.

## Data analysis

Unadjusted paired *t*-tests were conducted to explore pre- to post-intervention differences for all outcomes with statistical comparisons limited to participants who had complete pre- and post-intervention data for any given outcome. Level of significance was  $P \leq 0.05$ .

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## Results

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Table I presents demographic characteristics and baseline values for 31 men who consented to participate. By mid-intervention, 2 of the 27 participants withdrew from the study due to scheduling conflicts leaving 25 men who completed the full program. Attendance ranged from 63 to 93% (mean =  $86 \pm 7\%$ ) across the 16 sessions. The completion and submission of weekly activity logs ranged from 70 to 93% (mean =  $82 \pm 8\%$ ). After 8 weeks, significant ( $P \leq 0.05$ ) positive changes were observed for MVPA and overall PA (hour week<sup>-1</sup>), self-efficacy for PA, social support from family and friends, self-regulation for planning and goal setting, both functional fitness components and aerobic fitness (Table II). Satisfaction with the program was very high (Table III). One participant reported a minor leg muscle strain as a result of walking with no other adverse events reported by the remaining participants.

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## Discussion

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Previous PA intervention studies have not focused solely on midlife and older AA men, and in studies where they have been included, they comprised only a very meager proportion of the overall sample [9, 30]. The positive findings of this study attest to the feasibility of engaging midlife AA men in a tailored PA behavior change intervention. Over 8 weeks, significant positive changes in PA level, self-efficacy, perceived social support, self-regulation, aerobic fitness and more objective indicators of functional fitness were observed. In addition, attendance was very good, compliance for weekly submission of PA logs was high and ratings of

**Table I.** Participant baseline characteristics

Measure	N	Mean (SD) or %
Age, years	27	54.6 (5.9)
Education	27	
High school/GED	1	3.7
Some college	13	48.2
College graduate or higher	13	48.2
Income level	26 <sup>a</sup>	
\$10K–29.9K	3	11.5
\$30K–49.9K	4	15.4
\$50K–69.9K	7	26.9
\$70K+	12	46.1
Employment status	27	
Employed	23	85.2
Unemployed/retired	4	14.8
Marital status	27	
Married	22	81.5
Not married	5	18.5
Self-reported health rating	27	
Excellent/very good	6	22.2
Fair/good	21	77.8
Poor	0	0.0
Self-reported health conditions		
Diabetes	8	29.6
Hypertension	21	77.8
Arthritis	7	25.9
High cholesterol	17	63.0
Body mass index (BMI) (kg min <sup>-2</sup> )	27	33.7 (6.2)
Normal weight (<25 kg min <sup>-2</sup> )	3	11.1
Overweight (25–29.9 kg min <sup>-2</sup> )	6	22.2
Obese (≥30 kg min <sup>-2</sup> )	18	66.7

<sup>a</sup>N = 26 for income

satisfaction with various program components were very favorable. However, recruitment, retention and post-intervention assessment data indicate the need to account for a 20–35% loss to follow-up when determining adequate sample size for future studies.

One of the unique aspects of this intervention was the incorporation of healthy/friendly competition. Based solely on observations by research staff, the strategy of using teams to integrate this feature seemed to suit the men extremely well and may have contributed to the marked increase in the social support from friends (Table II). One previous qualitative study with older AA men and women mentioned the potential use of external competition

as 1 of 16 potential strategies for exercise program retention [31]. However, there has not been any explicit description of this strategy in any published intervention studies to promote PA among community-dwelling AA adults. The inclusion of a community service project that involved PA (i.e. performing 2 hours of yard and household work for an elderly couple with physical limitations) has also not been described by other investigators. Finally, the consideration of masculine identity and gender role embodied by midlife AA men and its potential influence on PA behavior is novel [32] and intervention processes designed to account for these proved effective in meeting the men's needs and interests.

**Table II.** Changes in behavioral, psychosocial and functional fitness components

Measure	Pre <i>N</i> <sup>a</sup>	Pre mean (SD)	Post <i>N</i> <sup>b</sup>	Post mean (SD)	<i>P</i> -value <sup>c</sup>	% change <sup>c</sup>
BMI (kg m <sup>-2</sup> )	27	33.7 (6.3)	23	33.0 (5.9)	0.05	-2
Body weight (kg)	27	104.3 (19.6)	23	103.2 (19.6)	0.09	-1
Moderate + vigorous PA (hour week <sup>-1</sup> )	27	4.8 (4.5)	25	12.2 (9.2)	0.0003	155
Total PA (hour week <sup>-1</sup> )	27	9.1 (7.0)	25	18.4 (16.0)	0.002	107
Self-efficacy for PA (range 0–100)	27	60.1 (22.8)	25	69.8 (16.9)	0.04	12
Social support—family (range 15–75)	27	31.4 (9.85)	25	40.7 (12.7)	0.001	28
Social support—friends (range 15–75)	27	29.4 (6.6)	24	45.1 (13.4)	<0.0001	53
Self-regulation—planning (range 10–50)	27	23.8 (7.4)	25	31.8 (6.7)	<0.0001	33
Self-regulation—goal setting (range 10–50)	27	24.2 (10.1)	25	36.6 (8.3)	<0.0001	48
Rockport 1-mile walking test (min)	26	16.0 (1.5)	22	14.5 (1.9)	<0.0001	-9
Chair stands (# in 30 s)	27	15.2 (4.5)	22	19.2 (4.1)	<0.0001	23
Sit and reach (inches beyond toes)	27	1.5 (3.9)	22	3.9 (4.5)	0.001	144

<sup>a</sup>One participant had a physical ailment that precluded him from completing the walking test.

<sup>b</sup>Two participants completed mailed surveys, but did not attend post-intervention assessments due to time conflicts leaving *N* = 23 for BMI, weight and functional fitness assessments. For *N* = 24, one participant did not complete the social support from friends module. For *N* = 22, one participant had a physical ailment unrelated to the intervention that precluded him from completing the functional fitness assessments.

<sup>c</sup>Paired *t*-test and percent change limited to participants with complete data for each outcome.

**Table III.** Satisfaction survey results (*N* = 25<sup>a</sup>)

Measure	Mean (SD) <sup>b</sup>
Overall the weekly Sessions I attended were helpful.	4.8 (0.37)
My time as a participant has been enjoyable.	4.9 (0.28)
The program helped me overcome barriers to being physically active.	4.7 (0.56)
Since becoming a participant I know more about how to keep physically active.	4.7 (0.56)
The staff did not give me the help I needed to become active.	1.2 (0.47)
The handouts I received were helpful.	4.7 (0.56)
I did not receive any information about PA or exercise program in my community.	1.9 (1.20)
Since becoming a participant I know more about staying healthy.	4.9 (0.33)
I would tell a friend to become a participant in a program like this.	4.9 (0.33)
I was able to achieve my PA goals during the program.	4.4 (0.71)
The duration of the program was too long.	1.2 (0.47)
I would participate in the program again.	5.0 (0.20)
The activity logs helped me to achieve my goals.	4.8 (0.44)

<sup>a</sup>Despite not attending post-intervention assessments, two of the participants completed and returned surveys that were mailed to them.

<sup>b</sup>Strongly disagree = 1 to Somewhat Agree = 3 to Strongly agree = 5

As this was a pilot study with a small self-selected sample and without a comparison group, and pre- to post-intervention assessments were conducted without blind conditions, the results must be viewed with caution. It is also unknown if the PA intervention would maintain its

effectiveness beyond the 8 weeks used in this study. The use of self-reported PA may have resulted in inaccurate depictions of PA level. However, the CHAMPS instrument has proven validity [24], reliability [24] and sensitivity to change [24, 25, 29, 33]. Although the relative

changes in total PA and MVPA (107–155%) in the current study were similar to those reported in diverse groups of older adults in previous PA intervention research using CHAMPS [25, 29, 33], future studies may wish to incorporate objective measures of PA to avoid biases associated with self-report. The treatment satisfaction survey did not include issues related to the tailoring of the intervention, and therefore, it is difficult to know which elements may have been more important to the men than others. Nevertheless, the general intervention format and content used in the current study have been previously demonstrated to result in similar significant changes in PA behavior under rigorously controlled conditions with larger sample sizes over longer periods of time [18, 34, 35], as well as during community-based translation projects [33] involving other populations.

In summary, this pilot program resulted in positive behavior, psychosocial and functional fitness outcomes in midlife AA men. The significant findings and lessons learned from this small pre–post community-based pilot study set the stage for a larger clinical trial that will control for threats to internal validity to fully test the efficacy of the intervention to increase PA and improve health- and fitness-related outcomes in this at-risk population.

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### Conflict of interest statement

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None declared.

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