

The Effect of a Walking Program on Perceived Benefits and Barriers to Exercise in Postmenopausal African American Women

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ABSTRACT

Purpose: Rates of exercise participation among African Americans is low. Identifying and overcoming perceived benefits/barriers unique to African American women (AAW) may increase their exercise participation. The purpose of this study was to describe perceived benefits/barriers to exercise in AAW before and after participation in a walking program. **Method:** Thirty-five postmenopausal AAW participated in a 7-week structured walking program with 2 walking goals. Perceived benefits and barriers to exercise were assessed using the Exercise Benefits/Barriers Scale at the beginning and end of the program. Participants engaged in a postintervention interview to further assess benefits/barriers to exercise participation. **Results:** Perceived benefits/barriers to exercise did not change significantly with participation in a walking program. Lack of time due to work and family responsibilities affected achievement of the brisk walking goal. **Conclusions:** Postmenopausal AAW in this study strongly believed in the benefits of exercising and had increased levels of participation in a walking program when lack of time was not a barrier. Overcoming this barrier is the true challenge to health care professionals.

Key Words: walking program, health promotion, exercise adherence, brisk walking, pedometer

INTRODUCTION

Physical activity participation in adults has been associated with many positive health outcomes.^{1,2} The benefits of exercise are many, yet rates of exercise among adults remain low.²⁻⁴ This finding is especially true for African American women (AAW)

who are at increased risk for heart disease, diabetes, and obesity.⁵ An alarming finding is that AAW are at greater risk for coronary heart disease than all other racial groups, including African American men.⁶ Furthermore, due to the loss of estrogen during menopause, older AAW are particularly susceptible.⁶

The risk of coronary heart disease and disability is increased with the onset of diabetes.⁷ In a national sample of older men and women, AAW had a significantly higher prevalence of type II diabetes than white women.⁷ Other factors that increase the risk of diabetes and coronary artery disease in AAW are high fat diets, lack of regular exercise, and obesity.^{2,8,9}

Compared to white women, AAW have a higher prevalence of overweight (57.5% and 78.0% respectively) and obesity (30.6% and 50.8% respectively).¹⁰ The high prevalence of obesity is reported to be a contributing factor to the increased incidence of hypertension in minority populations, especially among African Americans who have an earlier onset and run a more severe course of hypertension.¹¹ Those who exercise reduce their risk of diabetes, coronary heart disease, and obesity, yet AAW have lower rates of regular physical activity than whites, as well as other ethnic minorities.^{1,3,11,12}

PERCEIVED BENEFITS/BARRIERS TO EXERCISE

One possible explanation for these low rates of physical activity is individuals' beliefs about the benefits and barriers of exercise. Jones and Nies¹³ found a definite relationship between exercise participation of older AAW and perceived benefits to exercise. The most commonly cited benefits were stress reduction, enjoyment of exercise, improvement of mental health, and muscle strength gains. Findings from this study suggest that older AAW who perceive exercise to be beneficial and barriers to be few, exercise more.¹³ In contrast, other researchers found that exercise participation was low among older African Americans even though most of the subjects believed in the health benefits of exercising.¹⁴

Common perceived barriers to exercise include lack of time, family priorities, lack of motivation, lack of energy, lack of accessibility of fitness facilities, and lack of social support.^{4,12,15} The most commonly cited barrier is lack of time.^{12,16,17} For women, this barrier is often associated with a higher priority placed on family responsibilities.³ Hispanic women felt that the biggest barrier to exercise participation may be their multiple role responsibilities.¹⁶ These multiple roles severely limited the time they had to devote to personal care and physical activity.

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Among these women, exercise was not viewed as a priority.¹⁶

African American women identify many of the same barriers as the population as a whole, but a few are unique to this group. Lack of time was a barrier common to all women regardless of race/ethnicity,^{4,12,15} although it was not a top barrier in one study of older AAW.¹³ In this study, the top perceived barriers were that: exercise was hard work and tiring, places to exercise were too far away, walking in their neighborhoods was not safe, and people in exercise clothes looked funny.¹³ Feelings of being 'stressed out' or 'tired' were mentioned frequently as a deterrent to physical activity among a focus group of AAW.¹²

Among AAW women hair care issues have also been identified as a barrier to exercise.^{4,18} Sweating and messing up one's hair was identified as a common barrier to exercise among AAW.¹⁵ This barrier was particularly relevant if the exercise occurred during the workday. In another study investigating adoption of healthy behaviors, almost half of the AAW participants stated that hair care issues affected when and how long they exercised.² Even in African American girls as young as 11 to 14 years of age, the perception that exercise spoiled their hairstyles and make-up was seen as a serious deterrent to gym class participation.¹⁹

An additional barrier specific to AAW is body image.^{3,20} College-educated AAW (n=36) were interviewed regarding their perceptions of factors that influenced weight control. Twenty-nine of these women did not think that a thin body image was attractive.²⁰ These women also expressed the perception that the weight categories in height and weight tables were unrealistic for AAW. Furthermore, AAW do not define being overweight as unhealthy or unattractive.³ A common belief among AAW is that African American men prefer women with a rounded, shapelier figure.

Another unique exercise barrier in the African American community is that there is not a perceived need for additional physical activity.¹⁸ African Americans shared the belief that they get enough exercise during the course of the day because they have physically demanding jobs.¹⁸ Therefore, they felt that rest was more important than exercise during their leisure-time.

Although the benefits/barriers perceived by AAW have been studied, more research is needed to clarify these perceptions and the effect of specific exercise programs on them. The purpose of this study, therefore, was to describe the perceived benefits and barriers to exercise in postmenopausal AAW before and after a structured 7-week walking program.

METHODS

Participants

Forty-eight women recruited from the campus of one historically black university and hospital volunteered to participate in this study. All but 5 were eligible for enrollment based on their self-identification as African American, their cessation of menses for at least 1 year, and their lack of participation in a regular exercise program. None of the 43 subjects was

excluded because of: presence of an acute musculoskeletal injury, impaired ambulation or mobility, classification as high risk according to the American College of Sports Medicine (ACSM) guidelines for exercise participation,²¹ or history of coronary artery disease. Age range of the participants was 50 to 68 years with a mean age of 58. Before participating in the study, all enrollees read and signed an informed consent form approved by both the Rocky Mountain University of Health Professions Institutional Review Board and the Howard University Institutional Review Board.

Of the 43 women who enrolled, 8 did not complete the study due to musculoskeletal injury (n=3) or noncompliance with the protocol (n=5). Table 1 summarizes the characteristics of the remaining 35 AAW.

Instruments

Participants completed the Physical Activity Readiness Questionnaire (PAR-Q)²² to screen for cardiovascular disease and orthopedic injury. The Yamax Digiwalker pedometer was used to objectively measure the number of daily steps walked by each participant. The Yamax Digiwalker was found to be the most accurate brand in a study comparing 5 well-known

Table 1. Demographic Characteristics of Participants (N=35)

Variables (categories)	N	%
BMI		
Normal (18.5-24.9)	6	17.1
Overweight(25.0-29.9)	9	25.7
Obese (30.0-39.9)	14	40.0
Extremely obese(≥40)	6	17.1
Education		
High school diploma	8	22.8
Some college	15	42.8
College graduate	7	20.0
Post-graduate	5	14.3
Household income		
< \$10,000	1	2.9
\$21,000 - \$40,000	8	22.8
\$41,000 - \$60,000	9	25.7
> \$60,000	16	45.7
No response	1	2.9
Marital status		
Married/partnered	21	60.0
Single	5	14.3
Divorced	9	25.7
Widowed	0	0
Work status		
Hospital employee	12	34.3
University employee	12	34.3
Retired	11	31.4

pedometers and was the most valid in measuring steps compared to 10 other electronic pedometers.²³

To record daily minutes of 'brisk walking' and daily pedometer steps, all participants were given 7 one-page weekly walking logs. 'Brisk walking' was defined as an intensity of 'somewhat hard' which is 12 to 14 (range 6-20) on the BORG Rating of Perceived Exertion (RPE).²¹ Participants were instructed to daily record their walking distance, time, intensity, and any pertinent comments (ie, inclement weather, illness, etc) related to their activity.

Perceived benefits and barriers of exercise were measured using the Exercise Benefits/Barriers Scale (EBBS).²⁴ There are 29 items on the Benefits Scale with 5 major classifications: (1) life enhancement, (2) physical performance, (3) psychological outlook, (4) social interaction, and (5) preventive health. This instrument uses a 4-point Likert scale ranging from 'strongly agree (4)' to 'strongly disagree (1).'

The Barriers Scale is composed of 14 items with 4 major classifications: (1) exercise milieu, (2) time expenditure, (3) physical exertion, and (4) family discouragement. The Barriers Scale also uses a 4-point Likert scale ranging from 'strongly disagree (4)' to 'strongly agree (1).'

Procedure

Resting blood pressure and heart rate as well as height and weight were measured according to established guidelines. Height and weight were used to determine body mass index (BMI) and subjects were classified in accordance with the guidelines established by the National Institute of Health.²⁵

Participants were instructed in the use of the Digiwalker pedometer and told to record the number of steps in their walking logs each day during the first week. The average of these daily steps served as their baseline. Participants were also instructed to continue their normal activity level and not increase it during this initial baseline period.

Each participant then met with the principal investigator for a counseling session to establish walking goals and identify potential barriers, motivational strategies, and rewards for a successful outcome. One goal was based on the ACSM-CDC minimum physical activity recommendation of 30 minutes/day of moderate intensity exercise most days of the week.²¹ This goal was the same for all participants. Participants were instructed on using the BORG Rating of Perceived Exertion (RPE) to monitor the intensity of their walking. Participants were given a copy of the BORG RPE scale on a 2 x 5 laminated

card and encouraged to carry it with them during their brisk walking activity.

The second goal was a pedometer goal and was negotiated based on each participant's baseline average daily steps, the current pedometer guidelines of 10,000 steps/day,²⁶ a recommendation by the principal investigator, and the participant's suggested targeted value.

Participants completed the EBBS pre- and postintervention. The benefit and barrier items were scored separately on the EBBS. The possible range of scores on the benefits scale was 29 to 116 with higher scores indicating more perceived benefits to exercise. The possible range of scores on the barriers scale was 14 to 56 with higher scores indicating more perceived barriers to exercise.

To further assess perceived barriers/benefits, 2 questions were posed to each participant in a semi-structured interview at the conclusion of the study: (1) "How has your participation in this study affected your beliefs about physical activity?" and (2) "What prevented you from meeting your goals?" These questions were developed through analysis of data from the initial EBBS and the weekly logs. Four physical therapists familiar with qualitative research methods reviewed each question for content, clarity, and appropriateness. Each interview was conducted privately and was audio taped.

DATA ANALYSIS

Statistical analyses were performed using SPSS 10.0, graduate package. Cronbach's coefficient alpha was calculated to determine internal consistency of the EBBS. T-tests were used to evaluate differences on the benefit scale and barrier scale of the EBBS before and after intervention. The Wilcoxon signed rank test was used to compare the baseline average daily steps and the postintervention average daily steps. Descriptive statistics were used to describe achievement of the brisk walking goal. A frequency count was performed to determine the most common benefit and barrier statements among participants.

Audio recordings of the qualitative data collected during the interviews were transcribed and coded. Coding was done by labeling quotes according to themes, sorting the themes into groups, and then collapsing similar groups. Information was labeled according to the content, context, and meaning of the quote.

RESULTS

For the EBBS, Cronbach's coefficient alpha was 0.82, which

Table 2. Participants' Average Daily Steps Pre- and Postintervention

Statistic	Mean Daily Steps (preintervention)	Mean Daily Steps (postintervention)	Difference (post-pre)*
Median	4914	7103	+2189
Mean	6245	8100	+1855

* Significant (*P* < .01)

is an adequate level of internal consistency as it surpasses Nunnally's suggested value of 0.70.²⁷ T-tests showed no significant differences between the pre- and postintervention scores on the EBBS. The average daily steps data are shown in Table 2. The Wilcoxon signed rank test revealed a statistically significant difference ($P < .01$) between the average daily steps at baseline and postintervention.

Perceived Benefits

The scores on the pre- and post-Benefits Scale of the EBBS are shown in Table 3. Top benefit statements were identified

as those items on which most of the participants agreed and for which the average score was 3.6 or higher on either or both the pre- and postassessments (Table 4). Ninety percent of the participants agreed or strongly agreed with all but 2 of the 29 benefit statements on the post-EBBS assessment: (1) exercise increases my contact with friends, and (2) exercise increases acceptance by others.

Perceived Barriers

The scores on the pre- and post-Barriers Scale of the EBBS are shown in Table 3. There were only 3 barrier statements

Table 3. Scores* on the Exercise Benefits/Barriers Scale (EBBS)

Scale	Preintervention Scores minimum-maximum (mean)	Postintervention Scores minimum-maximum (mean)
Benefits (possible 29-116)	77-116 (101)	84-113 (97)
Barriers (possible 14-56)	26-52 (41)	32-53 (42)

* Higher scores indicate both more perceived benefits and more perceived barriers to exercise.

Table 4. Top Benefit Statements Associated with High Agreement on the Exercise Benefits/Barriers Scale (N = 35)

Benefit Item	Mean Score (Pre)	Mean Score (Post)	Classification
Exercise improves my physical fitness	3.8	3.8	Physical performance
Exercise improves my mental health	3.7	3.4	Psychological outlook
Exercise increases my feelings of well-being	3.7	3.6	Psychological outlook
Exercise increases my mental alertness	3.6	3.6	Life enhancement
Exercise improves my self-concept	3.6	3.6	Physical performance
Exercise reduces stress and tension	3.6	3.6	Psychological outlook
Exercise improves my cardiovascular functioning	3.7	3.6	Physical performance
Exercise helps me sleep better	3.5	3.7	Life enhancement
Exercise gives me a sense of personal accomplishment	3.6	3.6	Psychological outlook

Note: Classification taken from EBBS (Sechrist et al, 1987). There is a total of 29 benefit items on the EBBS. Scoring: 4= strongly agree; 3=agree; 2=disagree; 1=strongly disagree

Table 5. Top Barrier Statements Associated with High Agreement on the Exercise Benefits/Barriers Scale (N = 35)

Barrier Item	Pre Score* mean/% agreed	Post Score* mean/% agreed
Exercise is hard work	2.1 / 72.1	2.4 / 54.3
Exercise is fatiguing	2.5 / 46.5	2.6 / 45.7
Exercise is tiring	2.6 / 51.2	2.5 / 51.4

* Scores for barriers were reversed. Lower scores denote more agreement with the statement (1=strongly agree; 2=agree; 3=disagree; 4=strongly disagree. Classification taken from EBBS (Sechrist et al, 1987). There is a total of 14 barrier items on the EBBS.

about which at least 45% of the participants agreed (Table 5). All 3 of the statements were related to the physical exertion factor. On the postintervention EBBS, only 17% of participants agreed with the statement, "Exercise takes too much of my time." However, during the postintervention interviews, 46% of the participants cited lack of time as the main reason for not performing the recommended frequency and duration of brisk walking.

Unidentified Barriers

Unsafe neighborhoods or lack of child care were not identified as barriers to walking participation in the present study. The participants did not report 'sweating' or hair care concerns as deterrents to exercise.

DISCUSSION

Since we know exercise is an important health behavior, yet rates of exercise participation are low, it is valuable to investigate the factors that influence exercise participation in AAW. Some researchers suggest that exercise participation in AAW may be linked to their perceptions of the benefits versus the barriers to exercising.^{13,15,16} In the present study, investigation of the benefits and barriers to exercise in sedentary AAW before and after participation in a walking program revealed a high level of awareness of the benefits and barriers to exercise.

Perceived Benefits

All of the participants in this study believed there were multiple benefits to exercising. This was true both before and after the walking program. Although, all of the 35 women who completed the study increased their level of physical activity during the 7-week walking program, this achievement did not significantly change their beliefs regarding the benefits of exercise. In fact, 85% responded that they already had strong beliefs about the benefits of exercise so participation in the study only reinforced those beliefs. One participant commented, "Participation has reassured me the value of exercise." Another participant voiced a positive change in her belief about the effect of exercise:

Well, this study definitely has changed my beliefs about exercise... especially when I was able to do more than the 30 minutes... like when I did 60 minutes of brisk walking at the gym, it was like... amazing. After 2 days I had so much energy I was like bouncing off the wall. An hour didn't fatigue me. I thought, I'll do this hour then I'll go home and go to bed, but that wasn't true. I did my hour, I showered, and I was ready to go out and do something else. Now, I know the fatigue I have at the end of the day is not from exercise.

Other researchers have found that older African Americans believe in the benefits of exercising even though they don't exercise.¹⁶ Likewise, in the present study, AAW identified many benefits to exercising even though they were sedentary and, in most cases, overweight or obese. Furthermore, participants

recognized the benefits of exercise whether or not they met the recommended walking goal. Recognition of the benefits of exercise does not seem to be enough to motivate AAW to participate in regular exercise.

Perceived Barriers

The women in this study agreed with many of the perceived barriers on the Barriers Scale of the EBBS. Again, this was true both before and after participation in the walking program. While perceived barriers did not change as a result of participation in a walking program, it appears that one perceived barrier affected the frequency and intensity of the walking activity. During the postintervention interviews, those who did not engage in the recommended levels of brisk walking (n=16, 46%) reported one main reason, lack of time. Work responsibilities and family responsibilities were identified as the reasons for this lack of time for exercising. One participant echoed many others with the following comment: "Busyness... Work busy, home busy, family...all of the things combined. You find there are just not enough hours in the day." This finding is consistent with most studies that found lack of time to be the most commonly cited barrier to exercise participation.^{3,4,12,13,28}

Surprisingly, participants did not identify lack of time as a major barrier on the EBBS. The 3 barriers cited most often on the pre- and postwalking program EBBS were related to the physical exertion of exercise (Table 5). These barriers were also identified in a study by Jones and Nies¹³ with older AAW. Exercise is most fatiguing in the first several weeks of beginning a regular exercise program.²¹ If the study had been longer, it is possible that participants' increased fitness level would have resulted in less tiredness with exercise.

The reason participants did not identify time expenditure as a barrier on the EBBS, but did identify it as a barrier during the interviews is worth further investigation. Participants may have felt lazy agreeing with this statement when they knew that the walking program in this study only required them to exercise as little as 30 minutes a day, 4 days a week. In addition, they were told that they could break down the 30 minutes into 10 minutes bouts. This time requirement is small compared to other daily demands and therefore, it may have seemed unacceptable to agree with the statement, "Exercise takes too much of my time." Maybe if the statement had been worded differently, the issue of time expenditure would have been clearer. For example "time constraints affect my exercise participation," may be a better way of phrasing the time barrier statement.

Several barriers noted by other researchers among AAW were not identified as perceived barriers in this sample. None of the participants identified concerns about safety as a barrier to walking in their neighborhoods. If neighborhood safety had been an issue to the women in this walking study, it is unlikely that their participation would have been as high. The reason that participants did not identify neighborhood safety as a barrier may be because they were considerably more affluent than participants examined by other researchers.^{13,28} More than

70% of the AAW in this study had annual household incomes over \$40,000 (Table 1). In contrast, all of the participants in the study by Jones and Nies¹³ reported incomes of \leq \$10,000 while the participants in the Nies et al²⁸ study reported having low to middle income levels and living in an urban area. A survey of 5,000 residents of a metropolitan area found that perceptions of neighborhood safety were related to family income and educational levels.²⁹ Therefore, socioeconomic status, not race, appears to be the major factor affecting fear of walking in one's neighborhood.

Lack of child care was found to be the biggest barrier to exercise participation in a sample of AAW aged 35 to 50.²⁸ Again, this barrier was not identified in the present study probably because the women were older, aged 50 to 68, and their children were adults. If this study had included a younger sample, this barrier may have resulted in less exercise participation than the current sample.

Probably the most unique barrier to exercising for AAW is hair care concerns. Previous studies found 'sweating' and 'messing up one's hair' to be deterrents to exercise in AAW.^{2,15,18} Hair care concerns were not found to be a barrier in this study. The fact that sweating is less likely to occur with a moderate intensity exercise like the brisk walking used in the present study may explain the reason hair care barriers were not identified in the current sample. If a vigorous intensity exercise, like running, had been the intervention, it is possible that hair concerns would have been a bigger issue.

Secondly, unlike most parts of the United States, almost 50% of the AAW in this study wore their hair in a natural style. Natural hairstyles generally require less maintenance and are far less affected by sweating, weather conditions, and physical activity. The popularity of natural hairstyles on this urban campus may have been a significant reason why women did not regard hair concerns as a barrier to exercise participation.

This study has several limitations. The sample size was small and the participants in this study were not randomly chosen from the general population and thus, may not be truly representative of all postmenopausal AAW. A longer intervention period may have allowed more women to fully adopt an ongoing program and may have changed their perceptions of the benefits and barriers to exercise. This study was limited to exercise benefits and barriers related to a walking program. Findings may not be similar with other forms of exercise.

Future studies should use larger sample sizes, longer intervention periods, and other forms of moderate intensity or vigorous exercise. More research is needed on AAW who have normal BMIs, so that the relationship between perceived benefits/barriers to exercise and BMI in AAW can be more thoroughly explored.

CONCLUSIONS

Postmenopausal AAW in this study strongly believed in the benefits of exercising and had increased levels of participation when lack of time was not a perceived barrier. Strengthening a

client's time management skills and helping her view exercise as a major priority amongst competing demands may truly be the challenge for health care professionals committed to the health promotion of AAW.

ACKNOWLEDGEMENTS

Bernadette R. Williams was a doctoral student at Rocky Mountain University of Health Professions when this study was conducted.

Grant Support by Howard University Humanities, Social Science and Education Grant.

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