Published in final edited form as:

Am J Health Behav. 2011 ; 35(1): 40–50.

Predictors of Retention of African American Women in a Walking Program

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Abstract

Objective—To predict retention of African American women 6 months after initiating a community walking program.

Methods—Demographics, health status, cancer-related health behaviors, and network membership data from baseline wellness questionnaires of 1322 African American women participating in the walking program were analyzed using multivariate logistic regression models.

Results—Seventy-eight percent (n=1032) of African American women were retained at 6 months. DSN membership was the primary predictor of retention.

Conclusions—Women affiliated with our comprehensive network, which provides ongoing cancer awareness, screening, and prevention programs to reduce cancer health disparities, were more likely to accomplish the first major milestone of the program.

Keywords

African American; women; retention; physical activity; cancer prevention and control

Introduction

Participation in regular physical activity is associated with reduced risk of heart disease, hypertension, type 2 diabetes, obesity, and premature mortality.^{1–3} In addition, physical activity plays an active role in both the prevention and control of cancer. Moderate to vigorous physical activity can reduce the risk of developing colon cancer by 50% and is linked to lowered risk of breast cancer.⁴ Regular physical activity has been found to improve the quality of life among cancer patients and survivors.⁴ Despite these benefits, only 47% of US women meet the Centers for Disease Control and Prevention (CDC) and American College of Sports Medicine (ACSM) recommendations of engaging in at least 30 minutes of moderate-intensity physical activity 5 or more days per week.⁵ Among African American women, physical inactivity is even more pronounced with 36% of African American women compared to 50% of white women meeting physical activity recommendations.⁵ Women residing in the Deep South are even less likely to meet recommendations, with adherence among non-Hispanic white women living in Alabama and Mississippi at 43% and 40% respectively. Among non-Hispanic black women, adherence rates are 31% for Alabama and 29% for Mississippi.⁶ Given the higher proportion of African Americans who suffer from chronic conditions, efforts to engage and sustain these women in regular physical activity can have significant public health implications. The task of engaging African American women in physical activity interventions, however, may be particularly challenging.^{7–9}

There is a dearth of published findings on the retention of African Americans in population-based lifestyle interventions. In a review of population-based interventions for healthy eating and active living in communities of color, 18 of 23 studies (varying in length from <1 year to 5 or more years) failed to provide data on participants who were not retained in the program (ie, study attrition data).¹⁰ For the remaining studies, attrition fell into 3 categories: less than 10% (2 studies), 10% to 30% (2 studies), or more than 30% (one study).¹⁰ There was no discussion of predictors of attrition or efforts to retain those persons who remained in the program to its conclusion, thus limiting our understanding of factors supporting adherence to real-world physical activity interventions. However, more broadly, a recent review¹¹ of strategies to increase recruitment and retention of minorities in health-promotion research points to the critical role of community involvement. To that end, more population-based lifestyle interventions with communities of color have focused on extensive coalition building, mobilization of social networks, use of community health workers, and/or cultural adaptation of intervention materials to engage targeted audiences.¹⁰ Such strategies are consistent with a community-based participatory research (CBPR) approach in which community members are active participants in the design, delivery, and evaluation of community programs.¹² CBPR necessitates mutual partnership between academic researchers and the community to better understand the needs of the community and design programs that would maximally appeal to the targeted group.¹³ Such an approach may also lead to a strong and trusting community-research relationship, a factor that has been associated with higher rates of recruitment and retention of targeted groups.^{11,14–16}

The Deep South Network for Cancer Control (DSN) is an academic-community partnership using a CBPR approach to reduce or eliminate cancer health disparities among African

Americans in Alabama and Mississippi.^{17,18} The network operates in rural and urban areas that are densely populated by African Americans. The Black Belt of Alabama and the Mississippi Delta make up the rural areas and represent areas with historical lack of access to adequate health and social services and a predominately agricultural economy.¹⁷ According to the 2000 US Census,¹⁹ average per capita income for the Black Belt is \$12,691 and \$12,074 in the Delta. Urban areas include counties surrounding Birmingham, Alabama, and Hattiesburg, Mississippi. Per capita income for the urban Alabama site is \$20,892, and the average of the 2 urban sites in Mississippi is \$14,990.

Based on the empowerment theory developed by Paulo Friere,^{20, 21} and the community development theory²² of coalition building, a community action plan (CAP) was developed by DSN study investigators and community members to guide the activities of the partnership.¹⁸ The overall goal of the partnership is to develop, implement, and evaluate population-based interventions designed to reduce cancer health disparities. The CAP set a primary objective to increase levels of physical activity among African Americans. The partnership selected a 30-month community-based walking intervention to be implemented in 22 counties across the network. Given the challenges with the retention of minorities in long-term health-promotion interventions, we sought to identify predictors of retention of African American women in the DSN walking intervention at 6 months post initiation of the program, a milestone suggestive of behavior change.²³ Specifically, we assessed whether clustering of demographics, perceived health status, cancer-related preventive health behaviors, and/or membership in DSN (a measure of coalition building) would predict retention.

METHOD

Intervention Overview

The DSN WALK program is a population-based community walking intervention that focuses on encouraging participants to increase physical activity by joining structured DSN WALK teams and commit to a walking program for 30 months (2 ½ years). Our formative research suggested that many of the potential walkers were sedentary; thus, we asked team leaders to initially direct walkers to aim for 30 minutes of walking 3–5 days per week. After several weeks of meeting this goal, we further instructed team leaders to motivate walkers to strive for at least 30 minutes, 5 or more days per week. County participation in the DSN WALK program was voluntary, and all 22 counties in the network implemented the program.

Each DSN WALK team consisted of at least 2 members. A maximum team membership was not imposed. Team leaders were community volunteers who were currently affiliated with the DSN (eg, community health advisors, community network partners, DSN staff), identified by someone in the DSN partnership, or members of the community. Team leaders who were DSN-affiliated volunteers previously received 8 hours training in breast, cervical, and colorectal cancer, community-based participatory research, asset mapping, and research ethics. In addition, DSN-affiliated volunteers received ongoing health education through monthly maintenance meetings, regular distribution of information via the DSN mailing list, and an annual DSN Institute. All leaders received a 2-hour basic training on the DSN WALK program including the benefits of walking and strategies to maintain a walking program. In addition, leaders were provided instruction on data collection (eg, questionnaire, record of daily steps using a pedometer and activity log) and submission of monthly data to county coordinators (paid local staff).

DSN WALK team members participated in scheduled walking with their team and maintained a log of daily steps using their pedometer. Logs were submitting monthly to

DSN WALK leaders who provided them to county coordinators who checked for accuracy and completion of records prior to submitting to the study data management team. DSN WALK team members also participated in county-wide team meetings quarterly to help motivate and encourage continued walking. These meetings also included ongoing education about health promotion and cancer prevention and control.

Study Participants and Procedures

Data for this study were taken from 1322 African American women age 19 and over participating in the 30-month DSN WALK program. Participants were recruited by DSN WALK leaders through social networks, community institutions (eg, church, community centers), and DSN outreach activities. Prior to beginning the program, participants completed a baseline wellness questionnaire (described below) and received a WALK starter kit (t-shirt, pedometer, wristband) with the program logo and key message (ie, “walk, feel alive”). They were also trained by team leaders on collecting and submitting daily steps using their pedometer and wallet-sized step cards to record data. Study participants also received certificates of accomplishment when they met major program milestones (eg, 6-month participation). No additional incentives for participation were provided by the program. The study was reviewed and approved by the Institutional Review Board at the University of Alabama at Birmingham and by community network partnership (CNP) members who were DSN volunteers from each participating county.

Data Collection Measures

Wellness Questionnaire—Prior to the start of the program, participants completed a brief wellness questionnaire containing potential predictors of retention (our independent variables) as well as variables related to the larger study. Participants reported on their perceived overall physical health using a scale of 1 (excellent) to 5 (poor). They reported whether a health care professional ever told them they had any of several chronic health conditions including cancer (breast, cervical, colon/rectal, lung), diabetes, high blood pressure, arthritis, and depression. A composite score was calculated for the total number of chronic health conditions reported. In addition, a history-of-cancer score was calculated based on reports of past history of breast, cervical, colon/rectal, and/or lung cancer. The questionnaire also asked respondents to report on cancer screening behaviors including time since last clinical breast exam, Pap smear, and breast self-exam. For example, “a clinical breast exam is when a doctor, nurse, or other health professional feels the breast for lumps. How long has it been since your last clinical breast exam?” Survey respondents selected from response options ranging from “within 1 to 12 months” to “never.” Most questions were based on the Centers for Disease Control and Prevention’s Behavior Risk Factor Surveillance System Survey (BRFSS) to facilitate comparison with state and national data.

Estimated weekly physical activity and daily fruit and vegetable intake were also collected. Respondents self-reported the number of days in an average week they participated in at least 30 minutes of moderate physical activity (eg, walking for exercise, gardening). Responses ranged from “none” to “7 days.” Similarly, participants indicated the number of servings (“the size of a deck of cards”) of fruit and vegetables consumed on an average day. Responses ranged from “none” to “5 or more servings.” Demographic data such as education, marital status, employment status, and age were collected. Participants were also asked to indicate whether or not they were current DSN members.

Retention at 6 months—The dependent variable for this study is retention in the walking program at 6 months after starting the program. For the purpose of this study, retention is defined as submission of data at the interim (midpoint) data collection point.²⁴ As such, DSN WALK participants were considered retained if they submitted a completed monthly

log of pedometer readings at the 6-month interim period as documented by their respective county coordinator.

Data Analysis

Descriptive statistics were used to characterize the total sample of participants as well as compare participants by their retention status at 6 months (participants at 6-month mark vs those who were not). In the absence of published literature on predictors of retention of African American women in population-based physical activity interventions, we explored previously identified correlates of physical activity among this subpopulation. Specifically, we examined the relationship between demographics, perceived health status, cancer-related health behaviors, and membership in the DSN on ongoing participation in a long-term walking program 6 months after program initiation. First, we explored whether demographics (rural-urban residence, marital status, education, employment, age) and perceived health status would predict retention at the 6-month mark (Model 1). Next, we tested the impact of cancer-related health behaviors on retention. Model 2 included clinical breast exam, self breast exam, Pap test, average physical activity level, and average intake of fruit and vegetables as well as the variables from Model 1. Our final model (Model 3) involved the exploration of the impact of membership in the academic-community partnership on retention in addition to the previously identified correlates of physical activity among African American women. Note that the referent group selected for each variable is based on the current recommended guidelines (cancer-related health behaviors) or categories that have been identified in the literature as having a statistically significant association with participation in physical activity interventions (demographic variables). All analyses were completed using SAS 9.1[SAS Institute Inc, SAS OnlineDoc® 9.1.3, Cary, NC: SAS Institute Inc, 2002–2005]. Statistical significance was evaluated at $p < 0.05$ for all analyses; 95% confidence intervals are presented for the multivariate results.

RESULTS

Of the 1322 African American women who started the DSN WALK program, 1032 (78%) were retained at the 6-month mark. Retention rates varied across the 22 counties implementing the program (data not shown). Retention among urban areas ranged from 73% to 82%. Greater variability in retention (from 24% to 96%) was noted among the rural sites. All but one of the Black Belt of Alabama counties met the program objective of at least 70% retention at 6 months; whereas only 2 of the 8 Mississippi Delta counties met this objective. Baseline demographic characteristics of study participants are shown in Table 1. The mean age of the total sample was 48.4 (SD = 13.2). The sample was well educated with 69% reporting at least some college education. Most of the sample was currently employed (63.9%), and only 43% were married. Participants retained in the program were slightly older, more likely to be married or widowed, and retired than those participants who were not retained at 6 months ($P < 0.05$ for all comparisons).

Baseline health status and cancer-related health behavior characteristics are presented in Table 2. The majority of the sample (82.6%) rated their overall physical health between “good” and “excellent.” Only a limited portion reported a previous breast or cervical cancer diagnosis (4% and 0.8%, respectively). However, half of the sample (49.6%) had previously been told by a health professional that they had high blood pressure. Most reported recommended practices for cancer screening including clinical breast exam (73.2%) and Pap smear (69.2%) within the past year. In addition, 58.8% reported performing monthly breast self-exams. On the other hand, only about one third (35%) of the sample were meeting recommended physical activity guidelines (ie, at least 30 minutes of moderate physical activity, 5 or more days per week), and only 7.5% reported a combined fruit and vegetable intake of 5 or more servings daily. Statistically significant differences between the 2 groups

were noted for 3 health status variables. Women retained in the program at 6 months were more likely to have reported a previous breast cancer diagnosis, high blood pressure, and arthritis/rheumatism.

The results of the multivariate logistic regression models for retention in the DSN WALK program at 6 months are presented in Table 3. In Model 1, the demographics-and-health-status-only model, urban/rural residence and age were associated with retention. Women who lived in urban counties and women who were older than 50 years old were more likely to be retained in the WALK program than were those living in rural counties or women younger than 50 years, respectively (OR=1.603; 95% CI: 1.131–2.271 and OR=1.948; 95% CI: 1.441–2.634).

In Model 2 (demographics, health status, and cancer-related health behaviors), only one of the cancer-related health behavior variables was a significant predictor of retention in the program. Women who received a clinical breast exam more than 1 year ago were less likely to remain in the program than were their counterparts who received a clinical breast exam within the past 12 months (OR for 1 to less than 2 years=0.542; 95% CI: 0.340–0.864, OR for 2 to less than 3 years=0.431; CI: 0.195–0.953, OR for 5 years or more=0.310; 95% CI: 0.126–0.763 respectively).

In Model 3, the full logistic regression model including demographics, health status, cancer-related health behaviors, and DSN membership, the most important predictor of retention was self-reported membership in the DSN (OR=2.064; 95% CI: 1.426–2.988). With respect to demographic variables, participants older than 50 years were more likely to be retained than their younger counterparts (OR=1.694; 95% CI: 1.206–2.380). Additional results from Model 3 supported the initial findings that the majority of the cancer-related health behaviors studied were not significant predictors of retention, with exception of certain categories of clinical breast exam. The inverse relationship between having a clinical breast exam longer than 1 year ago and retention was robust in this model specification. Other participant characteristics such as health status, history of chronic condition, and any history of cancer as well as urban/rural status did not influence the likelihood of retention in this full model.

DISCUSSION

Most US adults fail to meet recommendations for physical activity.⁵ Adherence to recommendations varies by race and gender such that African American women are less likely to meet recommendations than are African American men, non-Hispanic white men, or non-Hispanic white women. In addition, African American women residing in the Deep South (eg, Alabama, Mississippi) are at even greater risk of failing to meet recommendations⁶ than are their non-Hispanic white counterparts. Promoting increased physical activity among these women is particularly important given the increased risk of chronic conditions linked to physical activity. For example, physical activity plays an active role in lowering the risk of certain cancers, such as breast and colorectal, and improving the quality of life among cancer survivors.⁴

Interventions targeting large numbers of people to adopt and maintain active lifestyles are a priority.²⁵ However, our knowledge about rates of retention and factors that predict who is likely to remain in real-world physical activity programs is limited.²⁶ Prior reviews of retention of minorities are limited in that many studies fail to distinguish between the processes of recruitment and retention, include few population-based interventions, and focus on a range of disease and health topics.¹¹ This study adds to the literature by reporting on the rate and predictors of retention of African American women residing in the Deep

South at a key milestone in a 30-month population-based physical activity intervention. To our knowledge, this is the first study to empirically test a measure of coalition building (membership in an academic-community partnership) on retention of African American women in a population-based physical activity program.

We found that the majority (78%) of African American women were retained in the community walking program 6 months after starting the program. The rate of retention by program site varied, with more counties in the Mississippi Delta failing to meet program objectives of at least 70% retention. Follow-up interviews with a random sample of team leaders who met or did not meet the retention goal and discussions with project leaders suggest possible explanations for lower retention including limited support staff and fewer locations for participants to walk in the Mississippi Delta relative to the Alabama sites.

To aid our ongoing programs, we were interested in gaining a better understanding of those characteristics that would predict which women would be more likely to remain actively involved in the long-term program. Data from this large sample of African American women residing in the Deep South points to membership in a network of persons with shared interests as the primary predictor of longer-term participation. Women who identified themselves as a DSN member were more likely to be active in the program at the 6-month mark. This finding is consistent with previous studies that have suggested that African American women are more likely to remain in structured physical activity or exercise programs when they perceive high levels of social support.^{7,27,28}

As described earlier, members of the DSN are a group of community members who have committed their time and talents to reducing cancer disparities in their communities. These members have also participated in cancer awareness and education programs and receive ongoing communication about cancer control and prevention. Although they may be more keenly aware of the links between their continued participation in regular physical activity and cancer risk-reduction, it may be equally plausible that they feel a sense of obligation to their DSN WALK team members to set a good example. In fact, Dunn notes that the “most compelling” reason for adherence to a physical activity prescription was participants’ feelings that they could encourage others to walk.²⁷ The DSN membership finding further supports the importance of coalition building and community involvement in population-based intervention research. Based on empowerment and community development theories, the DSN is characterized by the mobilization of social networks and use of local community members as research partners, elements previously suggested as linked to successful retention in population-based health-promotion programs.¹⁰

Unlike previous studies, perceived health status, cancer-related health behaviors, and demographic characteristics (eg, employment, urban-rural residence) did not consistently predict participants’ actively remaining in the program 6 months after it started. A recent study by Kirchhoff and colleagues²⁸ may offer some suggestion about the discrepant findings. Their work suggests that African American women who maintained their participation in an exercise program and those who did not were similar with respect to their perceived benefits and barriers of participation. Of note, however, those who maintained the exercise regime were more likely to suggest that they did so because of a desire to be a good role model for others, and they consistently sought support from others (eg, family, friends) to help motivate them to stay active.

Although our findings add to the limited data on community-based physical activity programs with African American women in the Deep South, our study has limitations. Our assessment tool did not measure other known psychosocial influences on physical activity participation. For example, African American women who did not remain in the program at

6 months may have had lower self-efficacy for physical activity participation as has been shown in other studies.²⁹ Similarly, although we speculate that increased social support was a component to why DSN membership was predictive of maintenance in the program, we did not directly measure participants' perceived social support. We also concede that there may be additional factors that we did not measure, but that may better account for participant retention. Finally, our findings are limited in generalizability to other groups. Our sample of highly educated African American women residing in Alabama and Mississippi may not be applicable to women of other races/ethnicities or geographic regions.

Despite these limitations, our findings suggest that actively engaging African American women in a longer-term community-based walking program is feasible. Ongoing study activities include a qualitative study to better characterize specific retention strategies employed by team leaders with varying levels of retention. The combined findings may further aid efforts to design and implement programs to increase and maintain regular physical activity among African American women.

Future research should continue to explore the separate roles of barriers to physical activity and facilitators of physical activity maintenance, as strategies needed to address each of these issues may not be the same.²⁸ Programs seeking to engage African American women in longer-term population-based physical activity interventions may benefit from promoting the social support aspect of a group walking program. In addition, the collective good of the members of the walking team, their family, and the larger community may be highlighted as reasons to continue participating in the program in spite of inevitable barriers. Finally, the longer-term retention of participants may be a function of formal and ongoing distribution of health education materials, participation in health-promotion activities, and interaction with social network members with shared goals. For our DSN members, the DSN WALK program is a part of a comprehensive initiative to reduce cancer health disparities in their communities. Future population-based physical activity interventions aimed at retaining African American women may benefit from the development of social networks based on coalition building and community involvement. Being connected to an established group that formulated an intervention agenda with significant input from community members and including local staff may improve the likelihood that this group of women would remain in the program over time.

In addition, a number of health behavior theories may be particularly useful in the further exploration of modifiable predictors of retention in long-term physical activity interventions for African American women. For example, the theory of planned behavior³⁰ (TPB) might explain retention in terms of the relationship between a participant's intent to participate, attitude toward the behavior (ie, physical activity), subjective norms concerning the behavior, and perceived behavioral control. Unlike demographic variables, which are often less amenable to change, if elements of the TPB were associated with retention, behavior interventions to enhance intent (and/or other relevant constructs) could be implemented to increase rates of retention.

Acknowledgments

This project was supported by grants from the National Cancer Institute (NCI) of the National Institutes of Health (NIH)-U01CA114619 and U01CA114619-04S1 (E. Partridge). We would like to thank all of the WALK participants and team leaders in Alabama and Mississippi for their ongoing participation in the DSN WALK program. In addition, we are forever grateful to the Deep South Network (DSN) staff and volunteers without whom our efforts to reduce cancer health disparities could never be realized. We further acknowledge the UAB Minority Health and Research Center (MHRC) WALK Campaign for technical assistance and support.

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Table 1

Baseline Demographic Characteristics of WALK Participants

Variable	Total Sample	Retained @ 6 months	Not Retained @ 6 months
No. Respondents	1322	1032	290
Age, mean years ** (SD)	48.4 (13.2)	49.6 (12.9)	44.4 (13.2)
Highest Education, n	1303	1019	284
Less than high school, n (%)	52 (4.0)	41 (4.0)	11 (3.9)
High school, n (%)	351 (26.9)	274 (26.9)	77 (27.1)
Some college, n (%)	349 (26.8)	281 (27.6)	68 (23.9)
College, n (%)	334 (25.6)	263 (25.8)	71 (25.0)
College plus, n (%)	217 (16.7)	160 (15.7)	57 (20.1)
Marital Status **, n	1300	1019	281
Married, n (%)	560 (43.1)	443 (43.5)	117 (41.6)
Not married, living together, n (%)	37 (2.8)	23 (2.3)	14 (5.0)
Separated, n (%)	70 (5.4)	57 (5.6)	13 (4.6)
Divorced, n (%)	201 (15.5)	159 (15.6)	42 (14.9)
Widowed, n (%)	139 (10.7)	117 (11.5)	22 (7.8)
Never married, n (%)	293 (22.5)	220 (21.6)	73 (26.0)
Employment Status *, n	1297	1014	283
Employed, n (%)	829 (63.9)	630 (62.1)	199 (70.3)
Unemployed, n (%)	104 (8.0)	78 (7.7)	26 (9.2)
Retired, n (%)	189 (14.6)	166 (16.4)	23 (8.1)
Disabled, n (%)	115 (8.9)	94 (9.3)	21 (7.4)
Homemaker, n (%)	43 (3.3)	32 (3.2)	11 (3.9)
Student, n (%)	17 (1.3)	14 (1.4)	3 (1.1)

Chi-square statistics for testing the overall association between each predictor variable and retention:

* P<.05;

** P<.001

Table 2

Baseline Health Status and Cancer-Related Health Behavior Characteristics of WALK Participants

Variable	Total Sample	Retained @ 6 months	Not Retained @ 6 months
Overall Health, n	1308	1024	284
Excellent, n (%)	108 (8.3)	82 (8.0)	26 (9.2)
Very Good, n (%)	336 (25.7)	272 (26.6)	64 (22.5)
Good, n (%)	636 (48.6)	488 (47.7)	148 (52.1)
Fair, n (%)	217 (16.6)	174 (17.0)	43 (15.1)
Poor, n (%)	11 (0.8)	8 (0.8)	3 (1.1)
Previous Cancer Diagnosis, n	1286	1006	280
Breast [*] , n (%)	52 (4.0)	46 (4.6)	6 (2.1)
Cervical, n (%)	10 (0.8)	7 (0.7)	3 (1.1)
Chronic Conditions, n	1286	1006	280
Diabetes or blood sugar, n (%)	227 (17.7)	178 (17.7)	49 (17.5)
High blood pressure [*] , n (%)	648 (49.6)	526 (52.3)	122 (43.6)
High cholesterol, n (%)	269 (20.9)	213 (21.2)	56 (20.0)
Arthritis/rheumatism [*] , n (%)	208 (16.2)	180 (17.9)	28 (10.0)
Last Clinical Breast Exam[*], n	1291	1008	283
Within past 12 months, n (%)	945 (73.2)	754 (74.8)	191 (67.5)
Within 1 to 2 years ago, n (%)	177 (13.7)	130 (12.9)	47 (16.6)
Within 2 to 3 years ago, n (%)	42 (3.8)	29 (2.9)	13 (4.6)
Within 3 to 5 years ago, n (%)	36 (2.8)	24 (2.4)	12 (4.2)
5 or more years ago, n (%)	37 (2.9)	24 (2.4)	13 (4.6)
Never, n (%)	54 (4.2)	47 (4.7)	7 (2.5)
Last Pap Smear	1299	1013	286
Within past 12 months, n (%)	899 (69.2)	695 (68.6)	204 (71.3)
Within 1 to 2 years ago, n (%)	218 (16.8)	176 (17.4)	42 (14.7)
Within 2 to 3 years ago, n (%)	66 (5.1)	55 (5.4)	11 (3.8)
Within 3 to 5 years ago, n (%)	43 (3.3)	30 (3.0)	13 (4.5)
5 or more years ago, n (%)	52 (4.0)	41 (4.0)	11 (3.8)
Never, n (%)	21 (1.6)	16 (1.6)	5 (1.7)
Often Perform Breast Self-exam, n	1279	996	283
Monthly, n (%)	752 (58.8)	597 (59.9)	155 (54.8)
Every few months, n (%)	274 (21.4)	216 (21.7)	58 (20.5)
Rarely, n (%)	196 (15.3)	139 (14.0)	57 (20.1)
Never, n (%)	57 (4.5)	44 (4.4)	13 (4.6)
Days get at least 30 mins moderate physical activity	1291	1009	282
None, n (%)	92 (7.1)	71 (7.0)	21 (7.4)
1–2 days, n (%)	301 (23.4)	242 (24.0)	59 (22.5)

Variable	Total Sample	Retained @ 6 months	Not Retained @ 6 months
3–4 days, n (%)	446 (34.5)	349 (34.6)	97 (34.4)
5 or more days, n (%)	452 (35.0)	347 (34.4)	105 (37.2)
Daily fruit and vegetable intake	1283	1002	281
Less than 1 serving, n (%)	80 (6.2)	64 (6.4)	20 (7.1)
1–2 servings, n (%)	605 (47.1)	474 (47.3)	131 (46.6)
3–4 servings, n (%)	498 (38.8)	393 (39.2)	105 (37.4)
5 or more servings, n (%)	96 (7.5)	71 (7.1)	25 (8.9)

Chi-square statistics for testing the overall association between each predictor variable and retention:

*
P <.01

Table 3

Impact of Demographics, Health Status, Cancer-Related Health Behaviors, and DSN Membership on Retention in the DSN WALK Program at 6 Months

Explanatory Variables	Model 1 ^a			Model 2 ^a			Model 3 ^a		
	Demographics + Health Status			Demographics + Health Status + Healthy Behaviors			Demographics + Health Status + Health Behaviors + DSN Member		
	Odds Ratio	95% Conf. Limits		Odds Ratio	95% Conf. Limits		Odds Ratio	95% Conf. Limits	
<i>Urban/rural status</i>									
Rural	1.0			1.0			1.0		
Urban	1.603	1.131	2.271	1.385	0.956	2.005	1.343	0.919	1.962
<i>Marital Status</i>									
Married ^b	1.0			1.0			1.0		
Single	1.009	0.766	1.330	0.994	0.740	1.333	0.948	0.699	1.285
Living with partner/cohabiting	0.497	0.245	1.009	0.495	0.231	1.059	0.510	0.233	1.119
<i>Education</i>									
College graduate or more ^b	1.0			1.0			1.0		
Less than high school (HS)	0.949	0.432	2.085	0.891	0.380	2.087	0.992	0.401	2.455
HS graduate or some college	1.214	0.916	1.608	1.179	0.874	1.591	1.234	0.905	1.683
<i>Employment</i>									
Employed ^b	1.0			1.0			1.0		
Student, homemaker or disabled	1.118	0.726	1.720	1.385	0.861	2.226	1.313	0.808	2.133
Unemployed or retired	1.220	0.839	1.775	1.263	0.848	1.881	1.345	0.886	2.042
<i>Age^b</i>									
Less than 50 years ^b	1.0			1.0			1.0		
50 years or older	1.948	1.441	2.634	1.950	1.409	2.700	1.694	1.206	2.380
<i>Self-reported health status</i>									
	1.087	0.919	1.286	1.113	0.927	1.338	1.129	0.934	1.363
<i>Any chronic health condition</i>									
	1.228	0.902	1.671	1.256	0.905	1.743	1.238	0.882	1.739
<i>Any history of cancer</i>									
	1.339	0.639	2.806	0.912	0.425	1.961	0.791	0.364	1.720
<i>Clinical breast exam</i>									
Less than 1 year ^b	---	---	---	1.0			1.0		
Never	---	---	---	1.802	0.702	4.625	1.892	0.688	5.198

Explanatory Variables	Model 1 ^a			Model 2 ^a			Model 3 ^a		
	Demographics + Health Status			Demographics + Health Status + Healthy Behaviors			Demographics + Health Status + Health Behaviors + DSN Member		
	Odds Ratio	95% Conf. Limits		Odds Ratio	95% Conf. Limits		Odds Ratio	95% Conf. Limits	
5 years or more	---	---	---	0.310	0.126	0.763	0.245	0.093	0.644
3 to less than 5 years	---	---	---	0.389	0.158	0.961	0.445	0.168	1.179
2 to less than 3 years	---	---	---	0.431	0.195	0.953	0.414	0.184	0.934
1 to less than 2 years	---	---	---	0.542	0.340	0.864	0.587	0.359	0.958
<i>Self breast exam</i>	---	---	---	---	---	---	---	---	---
Monthly ^b	---	---	---	1.0	---	---	1.0	---	---
Never	---	---	---	0.742	0.366	1.503	1.006	0.473	2.137
Rarely	---	---	---	0.698	0.471	1.034	0.718	0.480	1.075
Every few months	---	---	---	0.885	0.613	1.278	0.933	0.635	1.371
<i>Pap test</i>	---	---	---	---	---	---	---	---	---
Less than 1 year ^b	---	---	---	1.0	---	---	1.0	---	---
Never	---	---	---	1.507	0.429	5.295	1.967	0.475	8.147
5 years or more	---	---	---	1.452	0.584	3.609	2.400	0.836	6.892
3 to less than 5 years	---	---	---	1.390	0.570	3.394	1.401	0.545	3.602
2 to less than 3 years	---	---	---	2.189	0.958	5.005	2.369	0.989	5.674
1 to less than 2 years	---	---	---	1.479	0.928	2.357	1.505	0.927	2.441
<i>Physical activity</i>	---	---	---	0.952	0.884	1.026	0.957	0.885	1.034
<i>Fruits and vegetables intake</i>	---	---	---	0.950	0.847	1.064	0.942	0.837	1.061
<i>DSN Membership</i>	---	---	---	---	---	---	2.064	1.426	2.988

^a Each listed variable was included in the specified model unless denoted with the mark "---". The odds of remaining in the DSN WALK program at the 6-month mark vs not remaining in the program were estimated.

^b denotes a reference category.