Community-Based Participatory Approach to Reduce Breast Cancer Disparities in South Dallas

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Abstract

Background—South Dallas experiences significant disparities in breast cancer mortality, with a high proportion of stage III and IV diagnoses. To address these rates, the Dallas Cancer Disparities Community Research Coalition created an educational intervention to promote breast health and early detection efforts.

Objectives—The goals of the intervention were to increase (a) knowledge regarding the chief contributing factors for breast cancer, (b) awareness of the importance of screening for early detection, and (c) the proportion of women who have engaged in appropriate breast cancer screening practices.

Methods—Eligibility criteria for this nonrandomized, controlled trial included women age 40 and older, English-speaking, and having no personal history of cancer. Control participants received written breast health educational materials. Intervention participants attended 8 weekly sessions that included interactive educational materials, cooking demonstrations, and discussions emphasizing primary and secondary breast cancer prevention. All study participants completed a 1-hour survey at baseline and 4 months later.

Results—There were 59 women were enrolled in the intervention and 60 in the control group. At follow-up, after controlling for baseline mammography status, women in the intervention group

were 10.4 times more likely (95% confidence interval [CI], 2.9–36.4) to have received a screening mammogram in the last year compared with the control group. Intervention participants demonstrated statistically significantly higher rates of breast self-examination (odds ratio [OR], 3.0; 95% CI, 1.0–8.6) and breast cancer knowledge (*p* = .003).

Conclusion—Lessons learned from this community-based participatory research (CBPR) study can be used to create sustainable cancer disparity reduction models that can be replicated in similar communities.

Keywords

Breast neoplasms; community-based participatory research; health status disparities; health promotion; women's health

Recent improvements in cancer survival rates have not occurred equally in the United States. There are striking differences in the cancer incidence, prevalence, and mortality within racial and ethnic minority and poor populations compared with the U.S. population as a whole. Texas is no exception to these trends. In 2008, African Americans in Texas had a 22% higher cancer mortality rate than non-Hispanic Whites.[1] African Americans in Texas represent 16% of the poor, and nearly 30% of Texas African Americans are uninsured.[2] This lack of access to preventive health care and screening leads to increased risk of late-stage diagnosis of most forms of cancer compared with non-Hispanic Whites. Trends in breast cancer incidence and prevention are especially revealing of the disparities. Almost 37% of African Americans are diagnosed with breast cancer in the late stages of the disease, compared with only 28% of non-Hispanic Whites; and only 62% of women who have a total household income below $25,000 are adherent to recommended mammography screenings, compared with 71% of the total population.[1]

Dallas County reflects the general trend of health disparities in Texas, although disproportionately centralized in specific portions of the county and city. The age-adjusted all-cause cancer mortality rate (246.2 per 100,000) for South Dallas is over 35% higher than that of Dallas County (182.1 per 100,000) and Texas (179.4 per 100,000).[3,4] Almost 60% of households in South Dallas are estimated to have an annual income below $25,000, and over 80% of the residents are African American or Hispanic. The median household income in South Dallas is $19,621, with 36% of children under the age of 18 in the area residing in a home with a single female head of household. Finally, more than half of adults ages 25 years and older do not have at least a high school education.[5] Residents in South Dallas experience higher breast cancer mortality compared with county averages, which is not surprising, given the high proportion of initial stage III and IV diagnoses (13.1 per 100,000 women living in ZIP Code 75210 and 13.6 for 75215, compared with the Texas average of 8.0).[6]

In an effort to address these cancer disparities, academic investigators and community partners collaborated to create the Dallas Cancer Disparities Community Research Coalition in 2007 with the goal of reducing and eventually eliminating cancer disparities in South Dallas. The coalition employed a CBPR approach, building on a strong relationship between local universities and the South Dallas community. This paper describes the results of a pilot

test to assess the efficacy of an intervention designed by the coalition to promote increased knowledge about the importance of early detection to reduce breast cancer mortality and to increase uptake of breast cancer screening practices.

Methods

Creation of a Community Advisory Board

The Dallas Cancer Disparities Community Research Coalition, a group of vested stakeholders interested in eliminating cancer health disparities, was created in 2007 to address disparate levels of cancer mortality in the South Dallas area. This coalition grew out of an ongoing discussion between investigators and the South Dallas Community Action Coalition, during which cancer was identified as a top health priority requiring action. The coalition is led by a group of 10 diverse community members who serve on a Community Advisory Board (CAB). The CAB provides leadership and decision-making authority for the coalition. Members were identified by residents, nonprofit organizations, and political leaders as being impactful and committed to equity and social justice in their community. These individuals, who share authorship of this paper, completed capacity-building training courses on the community action model and CBPR, and obtained human subjects research training certification through the UNT Health Science Center institutional review board to become full co-investigators in the study. They also reviewed extant cancer incidence and mortality data to understand the extent of cancer disparities in South Dallas, with the objective of identifying and focusing on contributing causes and prevention approaches, including primary and secondary prevention.

The CAB members worked together to develop a governance structure that included the selection of a chair and a co-chair, as well as the creation of a set of bylaws that delineated standards of conduct and managed expectations. CAB members each have a 2-year appointment to the CAB and a new chair and co-chair are elected every 2 years. CAB members have the option of serving for an additional 2 years after their first term is completed.

Intervention Design and Framework

The coalition conducted a series of focus groups in the community to identify perceptions of South Dallas cancer disparities as well as community strengths and assets to promote cancer prevention. Based on the results of the focus groups as well as a review of evidenced-based interventions[7], the coalition designed an educational intervention to address breast cancer disparities. The educational program was focused on breast cancer prevention education and on increasing breast cancer screening uptake in the targeted population. Goals for the intervention included:

1. Increasing valid knowledge regarding the chief contributing factors for breast cancer and steps to reduce breast cancer risk;

2. Increasing awareness of the importance of mammograms for early detection of breast cancer; and

3. Increasing the proportion of women who are adherent to current breast cancer screening guidelines.

The coalition views cancer health disparities as the result of complex interactions among biological, psychosocial, and environmental risk and protective factors that accumulate across the life course.[8,9] This perspective allows for an intervention design that acknowledges the importance of contextual issues in the understanding of women's health, particularly in the selection of messages and delivery strategies that comprise the breast health education intervention. Led by investigators, the coalition examined multiple theoretical frameworks to construct the breast health education intervention and identified two that allow for the incorporation of unique needs of this population, as well as the barriers and related factors that were identified in the focus groups—the health belief model and the social cognitive theory.

Health Belief Model—Previous research has confirmed relationships between perceived susceptibility, perceived benefits and barriers, and uptake of mammography interventions.[10–12] The barriers to screening that were identified through the focus groups, coupled with the use of this model in previous successful mammography and breast health education community-based interventions,[13–15] resulted in its use in this study.

Social Cognitive Theory—The association between social networks and mammography use is well-established, and the coalition's use of lay health educators to help deliver the intervention as well as the group environment for the education sessions was grounded in this theory.[11,16,17] The idea was to provide peer norms through modeling, peer pressure/reinforcement, and emotional support in these settings.[18] This approach has been taken previously in community-based interventions to increase mammography utilization among low-income and African American women with success.[16,17,19–21]

CAB members reviewed community-based research-tested interventions to promote breast cancer screening archived in Cancer Control PLANET[22] and identified two evidence-based interventions, the Forsyth County Cancer Screening Project[23] (FoCaS) and the Witness Project,[24] as those that best matched the setting, population and needs of our low-income, racial/ethnic minority population.

The Intervention: Creation of an 8-Week Breast Cancer Education Curriculum

The coalition decided that the most impactful intervention based on findings of the FoCaS Project should incorporate small group educational sessions on breast cancer, and community informational sessions on breast cancer, while simultaneously increasing access to mobile mammography units and using lay health educators in the community. The Witness Project illustrated to the coalition that breast cancer survivor testimonials and a spiritual context could be impactful.

A series of eight breast health education classes (each 1.5 hours) were held on weekday evenings. The CAB selected Tuesday evenings to avoid conflict with church programmatic

activity and a 5:30 PM start time was selected to accommodate women who work during the day. A local elementary school was chosen as the primary meeting place for classes because of its close proximity to the community and because most of the community members who live in the area see the elementary school as a shining example of the potential of their community because of its academic success.

The educational program content (Table 1) focused on primary and secondary prevention of breast cancer and was delivered by a variety of volunteer individuals, including academic investigators, physicians, nurses, health educators, and lay persons who completed Speakers' Bureau training from the American Cancer Society. In addition to the eight education classes, a mobile mammography unit was brought to the neighborhood during the intervention period to provide breast cancer screening to women who were receiving the intervention.

Study Design

The CAB worked with investigators to design a nonrandomized experimental trial to assess the efficacy of the intervention. The study, which was approved by the UNT Health Science Center institutional review board, included two groups: One that received the intervention and a control group that did not receive the intervention. Those receiving the intervention resided in the Frazier Courts community of South Dallas. The control group resided in a sociodemographically similar community in West Dallas, which also experiences high cancer mortality but is geographically distal from the intervention community. Eligibility criteria for both groups were the same: Age 40 or older, residence in the specific geographically defined area, ability to speak English, and no personal history of cancer.

Frazier Courts, a low-income housing neighborhood located in South Dallas, is one of the most economically depressed areas in Dallas, with over 48% poverty and a median household income of just over $14,000.[5] Furthermore, the area's population is 95% African American. This population is highly uninformed regarding the importance of early detection of breast cancer and has historically been a difficult-to-reach group for outreach efforts. West Dallas was selected as the control community because of its similar sociodemographic composition of residents and its distance from the Frazier Courts area of South Dallas. Control participants only received written breast health educational brochures from the American Cancer Society and Susan G. Komen for the Cure Foundation, and were provided a list of resources to encourage them to seek mammography screening if they were not adherent to current guidelines. No additional breast health educational information was provided to control participants. Educational materials shared with intervention participants were multi-modal (including visual and experiential) and were much more detailed than those provided to control participants.

Lay health educators from the targeted areas led the recruitment of women from the respective neighborhoods of South and West Dallas for this study. The recruitment process included face-to-face recruiting whereby the lay health educators went door to door in both communities asking women a short list of screening questions to assess their eligibility. Referrals from CAB members and local faith- and community-based organizations were also instrumental in recruitment. Finally, a flyer was also posted in churches, local business

establishments, and beauty parlors. Given the multiple modalities used for recruiting this hard-to-reach population, investigators did not compute a participation rate.

All participants were compensated for their time and effort with WalMart gift cards (cash was perceived as possibly coercive with this study population). Women in the control group received a $10 WalMart gift card for their initial survey and another $15 gift card for their follow-up survey, for a total of $25. Women in the intervention group also received a $10 gift card for their initial survey; they received a $10 gift card per intervention session they completed, for a total compensation of $90. All participants, including both the intervention group and the comparison group, completed a verbally administered survey (taking approximately 45 minutes to complete) to assess their knowledge of breast cancer—its determinants, prevention, and the importance of early detection, perceptions, and receipt of breast cancer screening in the previous year at the beginning of the study. Other factors measured on the survey include psychosocial characteristics of participants that may inform the possible uptake of screening, including self-efficacy, health behavior, sociodemographic characteristics, and access to health care. When available, validated instruments were used to measure these constructs. Both the intervention group and the comparison group participants were reassessed after the 8-week intervention program was completed. A full list of constructs measured in the survey, along with the instrument or questions used to measure them, is given in Table 2.

Statistical Analyses

All analyses were performed using SPSS version 19 software (SPSS, Inc., Chicago, IL). Final results were determined to be statistically significant using a type I error level of 0.05 or less. Demographic and baseline variables were summarized using descriptive statistics. Continuous variables were summarized using mean, standard deviation, median, minimum, and maximum. The percentage of subjects in each category was calculated for the categorical variables. Comparability of treatment groups was assessed using independent t tests for continuous variables and Cochran–Mantel–Haenszel chi-square tests for categorical variables. To investigate our hypotheses that participants in the intervention group were significantly more likely to report having received a screening mammogram and clinical breast examination, engage in breast self-examination, have greater sense of control and breast cancer knowledge, and have lower fear and fatalism at posttest when compared with those in the West Dallas control group, logistic and linear regression models were used. Because our goal was to obtain a valid estimate of an exposure–outcome relationship and not to obtain a "best fit" predictive model, all regression models were manually fitted by investigators.

Results

Outcomes Results

A total of 59 women were enrolled in the intervention program; 60 women served as controls. Follow-up was complete for 78% of intervention participants ($n = 46$) and controls ($n = 47$). Sociodemographic characteristics of participants at baseline are shown in Table 3. The groups were comparable across all characteristics. Participants were all African

American and most were not married (mean 67% across intervention and control groups) or employed (71%). Most women reported at least one form of health insurance, including enrollment in the Dallas County indigent care program, and most reported a household income of less than $10,000. At baseline, 51% of women in the intervention group reported having had a screening mammogram in the previous year, compared with 53% women in the control group.

At 4 months after baseline, control participants' mammography rates did not increase from 53%, whereas the proportion of women in the intervention group reporting receipt of a mammogram rose from 51% to 80%. After adjusting for baseline status for each outcome, participants in the intervention group reported higher levels of screening mammogram receipt (OR, 10.43; 95% CI, 2.9–36.41) and breast self-examination (OR, 2.96; 95% CI, 1.01–8.63) compared with controls (Table 4).

Improvements in clinical breast examinations were observed for both groups (39% of intervention participants reported having a clinical breast examinations in the previous year at baseline compared with 63% at follow-up; these proportions for controls were 30% at baseline and 62% at follow-up), but the improvements were not different between the groups. The number of times a woman attended the intervention classes impacted the association between exposure to the intervention and follow-up mammography receipt. Women who attended five or fewer classes were no more likely than the control group to have had a mammogram in the last year (OR, 2.85; 95% CI, 0.42–19.22); however, women who attended six or more classes were 15.50 times (95% CI, 3.86–62.15) more likely to report having had a mammogram.

We explored two specific constructs as possible intervening variables between exposure status (i.e., being enrolled in the intervention or the control program) and mammography receipt–breast cancer fear/fatalism and sense of control. Breast cancer fear and fatalism significantly decreased among both intervention and control group participants ($p < .001$). Whereas the intervention participants' perceptions of fear and fatalism related to breast cancer were better than those in the controls, women in the intervention group were no more likely to reduce breast cancer fear and fatalism than those in the control group (Table 5). Furthermore, the follow-up levels of fear and fatalism were not associated with mammography receipt (OR, 1.02; 95% CI, 0.95–1.11), breast self-examination (1.05; 95% CI, 0.96–1.15), or clinical breast examination (OR, 1.05; 95% CI, 0.96–1.14). Similarly, after controlling for baseline sense of control, being in the intervention group was not significantly associated with a higher sense of control at follow-up ($\beta = 0.32$; $p = .67$). An increase in sense of control was not associated with increased odds of mammography receipt (OR 1.0 for every 1-unit increase in sense of control).

After controlling for baseline breast cancer knowledge scores, women in the intervention group had, on average, a 0.72-unit higher breast cancer knowledge score compared with women in the control group ($p = .003$). The greatest increase in knowledge occurred with the true/false statement, "Squeezing or cutting cancer causes it to spread." In the follow-up survey, 28% more participants in the intervention group answered false to this question. However, this myth persisted, with only 63% of participants in the intervention group

answering correctly at follow-up. Other sizable increases in knowledge were seen regarding the contribution of a healthy diet to reducing risk of breast cancer (13.0% improvement in accuracy) and understanding that a bruise or hit to the breast could not cause cancer (10.9% improvement in accuracy). Finally, having a higher breast cancer knowledge score was not associated with increased odds of having had a mammogram (OR, 1.16; 95% CI, 0.77–1.73), conducting a breast self–examination (OR, 1.01; 95% CI, 0.66–1.55), or receipt of a clinical breast examination (0.89; 95% CI, 0.58–1.37).

Intervention participants completed an evaluation to assess their feedback about multiple aspects of the program, including the venue, content, and food, to implement improvements in future iterations. Among participants, 80% indicated that their primary incentive to participate was the information being presented and the interaction with presenters. Suggestions for changes to the program included having additional physical space to accommodate more women and allowing younger women to participate, particularly those with a family history of breast cancer.

CBPR Process Results

CAB members played critical roles from planning and implementation of the initial town hall meeting to leading the graduation ceremony for intervention participants. As co-investigators in the study, they co-designed the formative focus groups (data not presented in this paper), assisted in qualitative data analysis, co-designed the intervention, assisted in recruitment, and interpreted the findings. They played a leadership role in the dissemination of findings to the community.

The CAB chair stated, "Seeking participants for the intervention in 103-degree temperatures and doors shut in my face … these were a means to an incredible end. The lasting image for me was seeing enthusiastic, motivated and inspired women, all dressed in pink, graduate from the breast cancer intervention sessions. This is an unbelievable feeling and I am honored to have had a small role in this remarkable research project."

Another CAB member shared that, "The women I had an opportunity to interact with not only received information that increased their awareness of breast cancer, but were able to develop strategies for their overall physical, emotional, and spiritual well-being. Based on direct feedback from some of the participants, the tangible information on appropriate diet, stress reduction, self-examination, mammograms, faith, and goal setting were easily applicable and practical in their daily lives. They stated that they were 'empowered' to take care of their bodies and encourage others to do the same."

The CAB involvement was evaluated midway through the 2-year project, using an online, anonymous survey developed by investigators that was grounded in previous coalition evaluation research.[36] The survey contained 10 questions with Likert scale response options and also allowed for open comments. Participation by the CAB was 100% and investigators compiled and presented the findings back to the group. Feedback from this survey indicated that more than two thirds of members agreed or strongly agreed with the following:

- The CAB is representative of the South Dallas community;

- The coalition has been effective thus far in achieving its goals in South Dallas;

- The amount of work required by CAB members is appropriate;

- Membership on the CAB has facilitated development of knowledge and skills that are useful to me and my community;

- There is positive synergy among members of the coalition, including CAB members, staff, and investigators;

- During group deliberations, all CAB members are given adequate opportunity to voice their opinions;

- All members of the coalition, including CAB members, staff, and investigators, have an equal voice in decision making for the project; and

- Coalition members demonstrate respect for race, power, and class differences.

Two items were noted as needing improvement:

- The coalition was noted as needing to enhance its presence at community events in South Dallas; and

- The CAB suggested that contributions toward achieving the goals of the coalition were not equally demonstrated by its members.

The CAB leadership changed as a result of these comments, which reinvigorated board energy and direction. The CAB continues to lead the program's efforts to reduce cancer health disparities in South Dallas.

Conclusion

This breast health educational intervention targeted to low-income African American women was developed with input from the South Dallas community (by way of the CAB) to improve knowledge related to breast cancer primary and secondary prevention and to encourage adoption of appropriate breast cancer screening activities. The program was successful in improving uptake of screening mammography and breast self-examination as well as increases in knowledge. The program did not significantly impact breast cancer fear and fatalism perceptions nor did it significantly enhance participants' sense of control, but these factors also did not predict receipt of the screening measures. We plan to use a cancer screening-specific measure of sense of control in future studies rather than the more general one[32] used in the present study to assess the program's impact on this factor.

Based on these findings, we postulate that the primary reasons for increased mammography uptake were overcoming sufficient anxiety (due in part to the trusting relationships formed with project staff and the increased understanding of the mammogram) and having access to a mammogram that was available in their neighborhood via the mobile unit. Previous studies have documented that merely having access to mammography may not be sufficient to improve screening rates in low-income women.[37] Fear of pain, distrust of the medical system, and fear of cancer-related costs are significant barriers for mammography uptake among African American women, and these factors influence the acceptability of mobile

mammography units.[38] Furthermore, women who are not accustomed to accessing the health care system regularly require a multifaceted, personalized approach to understanding the importance of early detection and overcoming the multiple barriers to cancer screening.[7,37] Programs found to be the most effective in promoting uptake of screening mammography among low-income women are those that employ lay health educators,[39] who serve as trusted change agents to influence behavior. In the present study, lay health educators played a significant role in not only recruiting and retaining participants in the educational program but also in supporting women to obtain a mammogram.

Perhaps equally important in this CBPR study, CAB members increased their capacity for prevention through enhanced understanding of research design and methodology. Members acknowledged a need for research to test their intervention, including the need for a control group. Each study community received a thorough briefing of the study results shortly after its end, led by CAB members. After hearing the results, participants in the control community expressed a desire to implement the intervention program in their neighborhood, for which the coalition continues to seek funds. The coalition has obtained funds to expand the program to additional women in South Dallas, and careful attention is being paid to ensuring fidelity of the curriculum over a multiyear time period, with dozens of volunteers assisting with the intervention delivery. A future goal includes assessing efficiencies of scale to allow the program's sustainability. Alumnae of the program are invited to participate in subsequent sessions to encourage participation and retention as well as community relevance. One alumnus joined the CAB.

One of the strengths of our pilot study is the retention rate. Of the women recruited to participate in the intervention program, 73% completed the educational program (i.e., missed two or fewer classes), and more than 40% of the women had perfect attendance at the eight weekly educational sessions. Program staff and CAB member communication with participants on a weekly basis was critical to retain participants in the intervention program. These relationships allowed trust and camaraderie to build.

Among this pilot study's limitations are its small sample size, which resulted in imprecise measures of association; short follow-up time, which may have contributed to a lack of uptake by intervention participants to receive a mammogram or a clinical breast examination; and an inability to randomly assign participants to exposures, which would have better isolated the effect of the intervention. We chose the selected nonrandomized design due to possible contamination in the geographically small areas. Future coalition cancer prevention efforts will include West Dallas, which served as the control community in the present study.

The work of the coalition to date has garnered much local attention, from media coverage in the South Dallas newspaper to broadcast television noting our study on its evening newscast. CAB members are listed as co-authors on all posters and papers and have co-presented at local and national conferences. They assisted in drafting this paper. Furthermore, CAB members play a lead role in all community meetings and presentations related to the project and continue to teach sessions during the program.

The coalition's long-term goal is to create sustainable cancer prevention models that can be replicated in other parts of Dallas County and in similar communities to reduce breast cancer disparities. The most important tenets to keep cohesion among investigators and community members were constant, open communication; transparency (including project budgets); and power-sharing, particularly in decision-making. Although the intervention developed through this process was focused on breast cancer prevention, the program is adaptable and its curriculum incorporates both didactic and experiential components to promote reduction of other health disparities in low-income, racial, and ethnic minority communities.

Acknowledgments

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Table 1

Breast Cancer Prevention Educational Intervention Curriculum Contents

Session	Topics
1	Introductions and Breast Cancer Survivor Stories Health Empowerment Facts About Breast Cancer Your Family History Breast Cancer Fact Versus Fiction
2	Risk Factors for Breast Cancer Methods for Early Detection Overview Importance of Early Detection of Breast Cancer Breast Self-Examination, Clinical Breast Examination, and Mammography
3	How to Eat Healthy on a Budget (Cooking Demonstration) How to Set Goals for a Healthy Lifestyle Resources to Create a Healthy Environment
4	Spiritual Wellness Versus Physical Wellness A Positive Physical Foundation: Treating the Body, Mind, and Spirit Setting Goals for Better Health Choices God's Will About Wellness
5	Breast Cancer Support Resources (if You Should Be Diagnosed) Support During Your Mammogram Local Health Care Resources
6	Differences Between Community and Community Health "Get Moving!" Physical Activity—Where to Start Which Workout Activities are Right for You
7	How to Talk to Your Doctor Making the Most of Your Annual Breast Cancer Prevention Visit Key Things Your Doctor Looks for From You as a Patient
8	Quick Review of Breast Cancer Facts Developing and Implementing a Plan for a Healthier Lifestyle Graduation and Celebration

Table 2
Survey Constructs, Instruments, and Measures

Construct	Instrument or Questions
Breast Cancer Knowledge	Breast Cancer and Heredity Knowledge Scale[25]
Breast Cancer Perceptions	Breast Cancer Perceptions and Knowledge Survey[26]
Breast Cancer Fear And Fatalism	Breast cancer fear scale,[27] Powe Fatalism Inventory[28]
Breast Cancer Prevention Behavior	Have you performed a breast self-examination in the last month? Have you had a mammogram in the last year? Have you had a clinical breast examination in the previous year?
Screening Barriers	Cancer Screening Behaviors[29]
Health Perceptions	Temporal Orientation Scale[30]
Health Behaviors	Behavioral Risk Factor Surveillance System[31]
Sense of Control	Personal Control Scale[32]
Social Support	General Social Support Scale[33]
Stress	Perceived Stress Scale[34,35]
Demographic Information	Behavioral Risk Factor Surveillance System[31]

Table 3

Comparison of Baseline Characteristics Between the Intervention and Control Groups

Characteristic	Intervention Group (*n* = 59)	Control Group (*n* = 60)	*p* Value
Age (mean)	54.9	55.0	.975
Race, *n* (%)			—
African American	59 (100.0%)	60 (100.0%)	
Hispanic ethnicity, *n* (%)			.157
Yes	0 (0.0%)	2 (3.3%)	
No	59 (100.0%)	58 (96.7%)	
Marital status, *n* (%)			.797
Single	18 (30.5%)	21 (35.0%)	
Married	7 (11.8%)	7 (11.7%)	
Separated/divorced	25 (42.4%)	21 (35.0%)	
Widowed	8 (13.6%)	11 (18.3%)	
Education, *n* (%)			.503
Less than high school degree	19 (32.2%)	21 (35.0%)	
High school diploma or GED	26 (44.1%)	22 (36.7%)	
Some college	11 (18.6%)	16 (26.7%)	
Bachelor's degree or higher	3 (5.1%)	1 (1.7%)	
Income, *n* (%)			.287
<$10,000	30 (50.8%)	39 (65.0%)	
$10,000–$50,000	28 (47.5%)	20 (33.3%)	
>$50,000	1 (1.7%)	1 (1.7%)	
Employment status, *n* (%)			.153
Employed or self-employed	23 (38.9%)	12 (20.0%)	
Student	0 (0.0%)	2 (3.3%)	
Homemaker	1 (1.7%)	1 (1.7%)	
Out of work or unable to work	25 (42.4%)	32 (53.3%)	
Retired	10 (16.9%)	13 (21.7%)	
Insurance coverage, *n* (%)			.349
Yes	44 (74.6%)	49 (81.7%)	
No	15 (25.4%)	11 (18.3%)	

Table 4

Proportions, Odds Ratios, and 95% Confidence Intervals for Selected Intervention Outcomes

Outcome	Yes* (%)	OR** (95% CI)	p Value
Breast Self-Examination[†]			.047
Intervention Group	77.8	2.96 (1.01–8.63)	
Control Group	63.8	—	
Clinical Breast Examination[‡]			.708
Intervention Group	63.0	1.21 (0.45–3.22)	
Control Group	61.7	—	<.001
Mammogram[§]			
Intervention Group	80.0	10.43 (2.99–36.41)	
Control Group	46.8	—	

*
Proportion reporting Yes at follow-up.

**
Adjusted for baseline breast status in each crude logistic regression model.

[†]Performance of a breast self-examination in the previous month.

[‡]Receipt of a clinical breast examination in the previous year.

[§]Receipt of a screening mammogram in the previous year.

Table 5

Linear Regression Coefficients and *p* Values of Selected Intervention Outcomes and Intervening Variables

Outcome	B	*p* Value
Breast Cancer Fear and Fatalism [*]	1.147	.377
Sense of Control [†]	0.319	.674
Breast Cancer Knowledge [‡]	0.713	.003

[*] Adjusted for baseline fear and fatalism score.

[†] Adjusted for baseline sense of control score.

[‡] Adjusted for baseline breast cancer knowledge score.