Published in final edited form as:
Ethn Dis. 2012 ; 22(3): 274–280.

Design and evaluation of a theory-based, culturally relevant outreach model for breast and cervical cancer screening for Latina immigrants

Kari White, PhD MPH,
Health Care Organization & Policy, University of Alabama at Birmingham

Isabel C. Garces, DrPH,
School of Public Health, Universidad de Antioquia

Lisa Bandura, MPH,
St. Vincent's Health System

Allison A. McGuire, MPH, and
Division of Preventive Medicine, University of Alabama at Birmingham

Isabel C. Scarinci, PhD MPH
Division of Preventive Medicine, University of Alabama at Birmingham

Abstract

Objectives—Breast and cervical cancer are common among Latinas, but screening rates among foreign-born Latinas are relatively low. In this article we describe the design and implementation of a theory-based (PEN-3) outreach program to promote breast and cervical cancer screening to Latina immigrants, and evaluate the program's effectiveness.

Methods—We used data from self-administered questionnaires completed at six annual outreach events to examine the sociodemographic characteristics of attendees and evaluate whether the program reached the priority population – foreign-born Latina immigrants with limited access to health care and screening services. To evaluate the program's effectiveness in connecting women to screening, we examined the proportion and characteristics of women who scheduled and attended Pap smear and mammography appointments.

Results—Among the 782 Latinas who attended the outreach program, 60% and 83% had not had a Pap smear or mammogram, respectively, in at least a year. Overall, 80% scheduled a Pap smear and 78% scheduled a mammogram. Women without insurance, who did not know where to get screening and had not been screened in the last year were more likely to schedule appointments ($p < 0.05$). Among women who scheduled appointments, 65% attended their Pap smear and 79% attended the mammogram. We did not identify significant differences in sociodemographic characteristics associated with appointment attendance.

Conclusions—Using a theoretical approach to outreach design and implementation, it is possible to reach a substantial number of Latina immigrants and connect them to cancer screening services.

Keywords

Cancer screening; community-based participatory research; program evaluation; Latina immigrants

Introduction

Breast cancer is the leading cause of cancer incidence and mortality among Latinas.[1] Latinas also have higher incidence and mortality rates for cervical cancer than whites.[1] While previous studies have found that Latinas have lower rates of breast and cervical cancer screening compared to whites,[2,3] recent data from the National Health Interview Survey (NHIS) indicate these racial/ethnic disparities have attenuated.[4] Using data from the 2008 NHIS, Shi et al (2011) found that 75% of Latinas and 77% of whites ages 21-64 had a Pap smear in the last two years, and 70% of Latinas and 76% of whites older than 50 had a mammogram in the last two years. However, this positive trend is tempered by more pronounced disparities based on nativity. According to these same data, 79% of US-born women had a recent Pap smear compared to just 60% of foreign-born women who resided in the US for less than 10 years.[5]

Foreign-born Latina immigrants face more barriers accessing health care and screening services than US-born Latinos.[6] Barriers such as lack of health insurance, limited English proficiency, recent arrival to the US, and procrastination impact Latina immigrants' access to health care and contribute to lower rates of breast and cervical cancer screening.[7-10] Additionally, embarrassment, fear of finding cancer, and lack of doctor's recommendation for screening have been associated with lower rates of Pap smears and mammograms among Latina immigrants.[8,11,12]

Outreach is often used to promote screening among underserved populations. While theoretically-driven outreach models have demonstrated significant increases in screening, few studies have evaluated such efforts among Latina immigrants.[13-21] In addition, outreach activities do not routinely address the full continuum of care but rather focus on campaigns to increase awareness about health risks and encourage priority groups to seek health screening services.[13,16,22,23] For certain health conditions, such as cancer, providing education alone to increase screening presents challenges as the priority population may not be connected to sources of care where they can get screened and may not follow through with treating any cancers found due to lack of insurance or financial resources.

This paper describes the development and implementation of a theory-based and culturally-relevant outreach program to promote breast and cervical cancer screening and provide the entire continuum of care for Latina immigrants. We also evaluate the program's effectiveness in connecting Latina immigrants to screening services.

Methods

Program Design

We conducted our outreach program between 2003 and 2009 in Birmingham, Alabama, an area with a rapidly growing Mexican-origin immigrant population. Community-based participatory research (CBPR) and the Empowerment Model guided the program's development and implementation. Under this approach, academic researchers, organization representatives, and community members share responsibilities in conducting research and developing solutions that are implemented in partnership.[24-26]

However, like other philosophical frameworks, CBPR and the Empowerment Model do not provide guidance regarding behavior change. To address this, we used the PEN-3 model as a guiding theoretical framework.[27] The PEN-3 model consists of three interrelated and interdependent dimensions of health: (1) health education, (2) educational diagnosis of the health behavior, and (3) cultural appropriateness of the health behavior. Each of these dimensions has three components that form the PEN acronym. For the purposes of the

program's design, we focus primarily on dimensions two and three. In the educational diagnosis of behavior, researchers identify **P**erceptions (knowledge, attitudes, and beliefs that contribute or hinder health behavior), **E**nablers (community and structural factors) and **N**urturers (factors in one's social network that reinforce health behaviors) that influence the priority audience. These three components are then classified according to their cultural appropriateness: **P**ositive, **E**xotic (behaviors unique to the culture but have no harmful consequences) and **N**egative.

As an initial step in developing the outreach program, we conducted several needs/assets assessments among Latina immigrants.[8,12] Among other health topics, the assessments identified a need for breast and cervical cancer educational programs and pointed to several barriers to receiving health care and screening: lack of insurance, cost of services, language difficulties, and lack of knowledge regarding available services.[8,12] The assessment findings as they correspond to the PEN-3 model are summarized in Column 1 of Table 1, and are similar to needs and assets surrounding breast and cervical cancer screening that have been identified among Latina immigrants in other settings.[28]

Having identified key areas of need in the Latino immigrant community and guided by the Empowerment Model approach, we recruited Latinos interested in serving as lay health promoters (LHPs) to assist in the development of a culturally-appropriate, theory-based intervention. We shared the findings from the needs assessment with the LHPs and provided them with knowledge surrounding breast and cervical cancer and health care access as well as skills training (e.g., communication, how to organize outreach programs). With these skills and information, the LHPs decided to organize a community service event addressing the lack of knowledge and access regarding cancer prevention and early detection through educational luncheons in local churches (a trusted setting). As part of the luncheon, a Spanish-speaking Latino physician was invited to give an educational talk, and a Latina breast cancer survivor provided her testimonial regarding the importance of cancer screening. In order to reduce the known barriers to participation, the LHPs chose to host the event on Saturday mornings. On-site child care and lunch were provided.

Program Implementation

The next critical element was arranging Pap smear and mammogram screenings and follow-up care should cancer be detected. The team organized meetings with local hospital administration and health care providers to determine which organizations would provide screening, follow-up for any abnormal results and treatment. The county public hospital, a private non-profit hospital, the local health department, and a community health clinic agreed to provide Pap smears and mammograms to women who participated in the luncheons. Pap smears were offered at low cost ($25.00), and mammograms were provided at no cost to participants age 40 years or over. The two hospitals agreed to provide the necessary medical follow-up if a woman had abnormal results. Furthermore, women attending screening appointments were given the opportunity to become a patient at these facilities through a sliding-fee scale, thereby linking women to regular sources of care.

The LHPs played an important role in coordinating event activities. They invited women from the local churches and distributed flyers in the community. Additionally, local Spanish newspapers and a local Spanish radio station agreed to advertise the events. Column 2 of Table 1 summarizes the outreach strategies as they correspond to the identified community needs and assets.

The first event was hosted in the fall of 2003 in three different churches. Women attending the event provided written informed consent and completed a short self-administered Spanish-language questionnaire, which included items on educational attainment, duration

of residence in the US and Alabama, years since last breast and cervical cancer screening, and knowledge of screening services in the area. Following the educational portion of the luncheon, participants were given the opportunity to schedule a Pap Smear and mammogram (for women age 40 or older) appointment on-site, as the research team worked with local health care providers to identify in advance days and times for screening appointments. A total of 13 outreach events were hosted between 2003 and 2009.

Program Evaluation and Statistical Analysis

To evaluate the outreach program, we used data from questionnaires completed by 932 participants who attended between 2003 and 2009. Women with missing information on sociodemographic characteristics (n=115) or scheduling or attending screening visits (n=25) and who were born in the US (n=10) were excluded from these analyses, yielding a sample of 782 Latina immigrants.

We assessed sociodemographic characteristics of participants to evaluate whether the program reached the priority population – foreign-born Latina immigrants with limited access to health care and screening services. Women's duration of residence in Alabama was dichotomized as less than five years or five years or more. We focused on women's duration of residence in Alabama rather than time in the US as Alabama was the primary US destination for more than 70% of women who attended and would better reflect their adaption to the local health care system. Time since last Pap smear and mammogram screening was categorized as less than 1 year, 1 to 3 years, 3 or more years (or does not remember date of last screening), and never. We chose this categorization to identify women for whom screening is likely recommended (1-3 years) and those who are in need of screening (>3 years, never) given that the questionnaire did not capture a woman's family history and past results, which would affect recommendations for screening at the time data was collected.[29,30]

In order to evaluate the effectiveness of the program in promoting screening, we considered the following outcomes: scheduling Pap smear and mammogram appointments, and among those who schedule appointments, attending the Pap smear and the mammogram appointment, all evaluated separately. Scheduling and attendance at Pap smear and mammogram appointments are analyzed separately because only women age 40 years or older were eligible for mammograms. Information on Pap smear and mammogram scheduling was collected from the on-site appointment scheduling records. Appointment attendance was determined from clinic records.

To assess the factors associated with appointment scheduling and attendance, we used Poisson regression models with robust standard errors rather than logistic regression since the outcomes of interest were common and the Poisson models would provide a better estimate of the relative risk. The prevalence ratios estimated from these models can be interpreted similarly to odds ratios. Here we report on a parsimonious multivariable-adjusted model that assessed the association between key sociodemographic characteristics (age, residence in Alabama for five or more years), indicators of health care access (having health insurance, knowledge of where to get a Pap smear or mammogram), and time since last screening with appointment scheduling and attendance. We assessed women's characteristics at the first event attended. All analyses were conducted using Stata 11.0 (Stata Corp, College Station, TX). This evaluation was approved by the appropriate Institutional Review Board.

Results

Sociodemographic Characteristics

Overall, 782 women attended the outreach event at least one time between 2003 and 2009. On average, 130 new women attended the event each year, with yearly attendance ranging from 77 women (2006) to 175 women (2005). The majority of women attending the event was younger than age 40 years (median age 33 years) and had less than a high school-level education (Table 2). Additionally, 38.0% reported having lived in Alabama for five or more years. Approximately half of women had a regular source of health care (53.3%), but few reported having health insurance.

Screening History and Rates of Pap Smear and Mammogram Scheduling and Attendance

In the initial year they attended, 40.9% and 10.7% of women reported having a Pap smear between one and three years or more than three years prior to the event, respectively. Only 8.7% of women reported never having had a Pap smear. Overall, 80.0% of women scheduled a Pap smear. Of those who scheduled an appointment, 65.0% attended the visit.

Among women age 40 years or older (n=229), more than one-third (39.3%) reported never having had a mammogram, and an additional 10.9% had not had a mammogram in three or more years. Of eligible women, 77.7% scheduled a mammogram and 79.2% of those attended the appointment.

Factors Associated with Scheduling and Attending Pap Smear and Mammogram Appointments

In the multivariable-adjusted models, women who were 40 to 49 years of age were more likely than women <40 years old to schedule a Pap smear appointment (Table 3). Compared to women whose last Pap smear was within 12 months of the event, those who had not had a Pap smear in the past year were more likely to schedule an appointment. Additionally, women who knew where to get a Pap smear and who had health insurance were less likely to schedule a Pap smear.

Among women eligible for mammograms, women whose last mammogram was more than one year prior to the event or had never had a mammogram were more likely than women whose last mammogram was in the prior year to schedule an appointment. Additionally, women who had health insurance were less likely to schedule a mammogram appointment.

We did not identify any sociodemographic or screening history characteristics associated with attending a scheduled Pap smear and mammogram appointment (results not shown).

Discussion

These results indicate that our outreach program was successful in reaching a substantial number of Latina immigrant women who exhibit common barriers to routine cancer screening and lends further evidence to the value of a CBPR approach in reaching underserved populations.[16,19] Additionally, by conducting the outreach program on an annual basis, we reached new immigrant women each year who may especially benefit from breast and cervical cancer screening.

The outreach program was also successful in promoting cancer screening among women attending the event. More than 75% of women scheduled an appointment, and those who may have greater barriers to care (i.e. no insurance, did not know where to get screening) and who had not been screened within the last year, were more likely to schedule a Pap smear and mammogram. This suggests that educational approaches that address cultural

concerns surrounding screening, involve trusted social connections within the community and provide on-site scheduling in Spanish are effective in engaging Latina immigrants in cancer screening. Additionally, we found that many women who had been screened within the last year and knew where to get screening also scheduled a Pap smear or mammogram, although not surprisingly they did so at lower rates. For these women, who may soon be due for screening, the Spanish-language announcements for the outreach event could provide a cue to action, and the program offers a convenient means by which to schedule appointments.

Another indication of the success of this outreach program is that the majority of women who scheduled a Pap smear or mammogram attended their screening appointment. We attribute the high rates of attendance to establishing a trusted environment through having clinic staff at the educational events and assuring women that LHPs would also be present at the clinics. However, it is important to note that some women who scheduled an appointment did not attend. The sociodemographic characteristics we assessed provide little insight into this finding, and other factors such as scheduling conflicts with work and women's strength of motivation for screening may account for these results.

Although the outreach event linked many women to screening, we found that a substantial proportion of women who had never had a Pap smear did not schedule a Pap smear appointment. This finding suggests that there may be other barriers that keep some women from seeking Pap smears. For example, fears about the exam and (lack of) perceived risk for cervical cancer, which have been noted as barriers to screening in other studies,[11,12] may be stronger for these women and more difficult to address in a large group setting such as this. Further research is needed to better identify these barriers in order to develop educational messages and targeted interventions to encourage and facilitate screening for these women.

The findings presented should be evaluated in the context of the study's limitations. Although the program was designed to integrate theory into an outreach effort to increase screening among Latina immigrants, we are not able to assess its effect compared to other models due to the lack of a control group. However, our results for attending Pap smear and mammogram screenings compare favorably with findings from other studies of Latinas and women of other race/ethnicities that included intervention and control groups.[13,15,16,18,31]

Another limitation of this study is that we do not know whether women who attended their screening appointment and did not return to future events are now connected to the health care system and scheduling routine screenings on their own. This is possible for some participants, given our collaboration with providers to offer women the opportunity to enroll in local health care programs. Finally, we do not have data on the number of women who needed follow-up for abnormal results. While this would provide further evidence of the value of the program, it does not undermine the program's effectiveness in reaching underserved women and represents an important extension over other outreach efforts that primarily focus on education and promotion of screening alone.

Conclusion

This program provides a model for designing and implementing theory-based outreach to increase cancer screening for underserved Latina immigrants. By involving community partners in all stages of design and implementation, we were able to reach a large number of Latina immigrants and connect them to health care services, including the full continuum of follow-up care as needed. This may represent a promising approach toward the reduction of the excess burden of breast and cervical cancer in this population.

Acknowledgments

This outreach program was supported by grants from the Susan G. Komen for the Cure, North Alabama affiliate and the National Cancer Institute (R25CA106870).

References

1. American Cancer Society. Cancer facts and figures for Hispanics/Latinos, 2009-2011. Atlanta: American Cancer Society; 2009.
2. Sabatino SA, Coates RJ, Uhler RJ, Breen N, Tangka F, Shaw KM. Disparities in mammography use among US women aged 40-64 years, by race, ethnicity, income, and health insurance status, 1993 and 2005. Medical Care. 2008; 46(7):692–700. [PubMed: 18580388]
3. Chandra A, Martinez G, Mosher W, Abma J, Jones J. Fertility, family planning and reproductive health of US women: Data from the 2002 National Survey of Family Growth. Vital Health Statistics. 2005; 23(25):1–160. [PubMed: 16285217]
4. Shi L, Sebrun LA, Zhu J, Tsai J. Cancer screening among racial/ethnic and insurance groups in the United States: A comparison of disparities in 2000 and 2008. Journal of Health Care for the Poor and Underserved. 2011; 22(3):945–961. [PubMed: 21841289]
5. American Cancer Society. Cancer prevention and early detection: Facts and figures 2010. Atlanta: American Cancer Society; 2010.
6. Meissner HI, Breen N, Taubman ML, Vernon SW, Graubard BI. Which women aren't getting mammograms and why? (United States). Cancer Causes & Control. 2007; 18(1):61–70. [PubMed: 17186422]
7. Rodriguez MA, Ward LM, Perez-Stable EJ. Breast and cervical cancer screening: Impact of health insurance status, ethnicity and nativity of Latinas. Annals of Family Medicine. 2005; 3(3):235–241. [PubMed: 15928227]
8. Garces I, Scarinci I, Harrison L. An examination of sociocultural factors associated with health and health care seeking among Latina immigrants. Journal of Immigrant and Minority Health. 2006; 8(4):377–385. [PubMed: 16636902]
9. Mack KP, Pavao J, Tabnak F, Knutson K, Kimerling R. Adherence to recent screening mammography among Latinas: Findings from the California Women's Health Survey. Journal of Womens Health. 2009; 18(3):347–354.
10. Carrasquillo O, Pati S. The role of health insurance on Pap smear and mammography utilization by immigrants living in the United States. Preventive Medicine. 2004; 39(5):943–950. [PubMed: 15475028]
11. Byrd TL, Chavez R, Wilson KM. Barriers and facilitators of cervical cancer screening among Hispanic women. Ethnicity & Disease. 2007; 17(1):129–134. [PubMed: 17274222]
12. Scarinci I, Beech B, Kovach K, Bailey T. An examination of sociocultural factors associated with cervical cancer screening among low-income Latina immigrants of reproductive age. Journal of Immigrant Health. 2003; 85(3):119–128. [PubMed: 14512766]
13. Russell KM, Champion VL, Monahan PO, et al. Randomized trial of a lay health advisor and computer intervention to increase mammography screening in African American women. Cancer Epidemiology Biomarkers & Prevention. Jan; 2010 19(1):201–210.
14. Han HR, Lee H, Kim MT, Kim KB. Tailored lay health worker intervention improves breast cancer screening outcomes in non-adherent Korean-American women. Health Education Research. Apr; 2009 24(2):318–329. [PubMed: 18463411]
15. Fernandez ME, DeBor M, Candreia MJ, Wagner AK, Stewart KR. Evaluation of ENCOREplus - A community-based breast and cervical cancer screening program. American Journal of Preventive Medicine. 1999; 16(3):35–49. [PubMed: 10198679]
16. Fernandez ME, Gonzales A, Tortolero-Luna G, et al. Effectiveness of Cultivando La Salud: A breast and cervical cancer screening promotion program for low-income Hispanic women. American Journal of Public Health. May; 2009 99(5):936–943. [PubMed: 19299678]

17. Fernandez-Esquer ME, Espinoza P, Torres I, Ramirez AG, McAlister AL. A Su Salud: A quasi-experimental study among Mexican American women. American Journal of Health Behavior. Sep-Oct;2003 27(5):536–545. [PubMed: 14521249]

18. Paskett E, Tatum C, Rushing J, et al. Randomized trial of an intervention to improve mammography utilization among a triracial rural population of women. Journal of the National Cancer Institute. Sep; 2006 98(17):1226–1237. [PubMed: 16954475]

19. Lam TK, McPhee SJ, Mock J, et al. Encouraging Vietnamese-American women to obtain Pap tests through lay health worker outreach and media education. Journal of General Internal Medicine. 2003; 18(7):516–524. [PubMed: 12848834]

20. Hurd TC, Muti P, Erwin DO, Womack S. An evaluation of the integration of non-traditional learning tools into a community based breast and cervical cancer education program: The Witness Project of Buffalo. Bmc Cancer. 2003; 3:18. [PubMed: 12775219]

21. Earp JA, Eng E, O'Malley MS, et al. Increasing use of mammography among older, rural African American women: Results from a community trial. American Journal of Public Health. Apr; 2002 92(4):646–654. [PubMed: 11919066]

22. Lopez VA, Castro FG. Participation and program outcomes in a church-based cancer prevention program for Hispanic women. Journal of Community Health. Aug; 2006 31(4):343–362. [PubMed: 16894830]

23. Thompson B, Coronado G, Chen L, Islas I. Celebremos La Salud! A community randomized trial of cancer prevention (United States). Cancer Causes & Control. Jun; 2006 17(5):733–746. [PubMed: 16633921]

24. Freire, P. Pedagogia do oprimido. Rio de Janeiro, Brazil: Paz e Terra; 1970.

25. Israel, BA.; Schulz, AJ.; Parker, EA.; Becker, AB.; Allen, AJ., III; Guzman, JR. Critical issues in developing and following community based participatory research principles. In: Minkler, M.; Wallerstein, N., editors. Community based participatory research for health. San Francisco, CA: Jossey-Bass; 2003. p. 53-76.

26. Wallerstein, N.; Duran, B. The conceptual, historical, and practice roots of community based participatory research and related participatory traditions. In: Minkler, M.; Wallerstein, N., editors. Community based participatory research for health. San Francisco, CA: Jossey-Bass; 2003. p. 27-52.

27. Airhihenbuwa, CO. Health promotion and disease prevention strategies for African Americans: A conceptual model. In: Braithwaite, RL.; Taylor, SE., editors. Health issues in the Black community. San Francisco, CA: Jossey-Bass; 1992. p. 267-280.

28. Erwin DO, Trevino M, Saad-Harfouche FG, Rodriguez EM, Gage E, Jandorf L. Contexualizing diversity and culture within cancer control interventions for Latinas: Changing interventions not cultures. Social Science and Medicine. 2010; 71:693–701. [PubMed: 20646810]

29. U.S. Preventive Services Task Force. Screening for breast cancer: Recommendations and rationale. Annals of Internal Medicine. 2002; 137(Part I):344–346. [PubMed: 12204019]

30. American College of Obstetricians and Gynecologists. Cervical cytology screening: ACOG Practice Bulletin No. 45. Obstetrics and Gynecology. 2003; 102(2):417–427. [PubMed: 12907124]

31. Yabroff KR, Mangan P, Mandelblatt J. Effectiveness of interventions to increase Papanicolaou smear use. Journal of the American Board of Family Practice. May-Jun;2003 16(3):188–203. [PubMed: 12755245]

Table 1

Summary of needs assessment findings and outreach strategies and approaches according to PEN-3 Model framework

	Column 1	Column 2
	Needs Assessment Findings	**Outreach Strategies and Approaches**
Perceptions	**Positive** ■ Aware of role of family history in breast cancer ■ Importance of preventive regular check-ups ■ Family and children are motivation to be healthy ■ Acknowledge responsibility for their own health ■ Receptiveness to information and health education **Negative** ■ Lack of knowledge regarding HPV and HPV infection, breast/cervical cancer, screening ■ Procrastination ■ Reluctant to perform breast self-examination and have health care professionals touch their breasts and pelvis ■ Stoic attitude toward health and illness ■ Believe preventive practices cannot change the outcome ■ Believe there is no treatment for breast and cervical cancer	■ Reinforce knowledge regarding the role of family history in breast cancer risk ■ Reinforce knowledge regarding the importance of Pap smears and clinical breast exams ■ Reinforce importance of engaging in preventive practices and motivation to be healthy for their family and work ■ Promote knowledge about other risk factors for breast and cervical cancer as well as treatment options ■ Instruct women to perform breast self-exams and identify lumps using breast models ■ Have breast cancer survivors as guest speakers to discuss their experiences and answer questions
Enablers	**Positive** ■ Get health information at clinics, from pamphlets, radio and neighborhoods they live in ■ Trust in community-based organizations (CBO's) and churches ■ Trust in Lay Health Promoters (LHPs) ■ Trust doctors as a source of health information **Negative** ■ Lack of health insurance, lack of transportation, cost, language barriers, lack of knowledge on where to obtain pap smears, clinical breast exams, and mammograms ■ Lack of trust in interpreters ■ Difference in health care system from home country ■ Fear of going to the doctor because of legal status	■ Advertise the event using LHPs, Spanish-language radio, newspapers, flyers in churches ■ Reinforce trust in CBO's and churches by conducting the event at these sites ■ Arrange for physicians to give the lecture and answer medical questions ■ Decrease structural barriers by providing screening at low- to no-cost, and follow-up on abnormal results and treatment if cancers found ■ Promote knowledge about where to obtain screening by scheduling appointments for Pap smears, breast exams and mammograms at the event ■ Education on the US health care system ■ Arrangements for participants to become regular patients of the clinics

	Column 1	Column 2
	Needs Assessment Findings	**Outreach Strategies and Approaches**
	■ Believe they do not have control over their health because of the 'system'	
Nurturers	**Positive** ■ Strong alliance to other Latinas ■ Strong desire to help each other ■ Motivation to keep their families healthy **Negative** ■ Perceived racial/ethnic discrimination at clinics	■ Provide education in group setting ■ Have breast cancer survivors as guest speakers to discuss their experiences ■ Presence of LHPs and outreach staff at clinics when participants attend their scheduled appointments ■ Presence of clinic staff at educational events

Table 2

Sociodemographic characteristics, screening history, and rates of Pap smear and mammogram appointment scheduling and attendance for women at their initial outreach event, 2003-2009 (n=782)

Sociodemographic characteristics	n	(%)
Age, years		
19 – 39	553	(70.7)
40 – 49	152	(19.4)
50 – 88	77	(9.9)
Education		
Primary or less	255	(32.6)
Secondary/Less than high school	248	(31.7)
High school or more	279	(35.7)
Has lived in Alabama ≥ 5 years		
Yes	297	(38.0)
No	485	(62.0)
Has a regular source of medical care		
Yes	417	(53.3)
No	365	(46.7)
Has health insurance		
Yes	53	(6.8)
No	729	(93.2)
Screening History and Rates of Scheduling and Attendance		
Time since last Pap smear		
< 1 year	310	(39.6)
1 – 3 years	320	(40.9)
≥ 3 years/does not remember	84	(10.7)
Never	68	(8.7)
Knows where to get a Pap smear		
Yes	425	(54.4)
No	357	(45.6)
Scheduled a Pap smear appointment		
Yes	626	(80.0)
No	156	(20.0)
Attended the Pap smear appointment[a]		
Yes	410	(65.0)
No	216	(35.0)
Time since last mammogram[b]		
< 1 year	39	(17.0)
1 – 3 years	75	(32.8)
≥ 3 years/does not remember	25	(10.9)
Never	90	(39.3)

Sociodemographic characteristics	n	(%)
Knows where to get a mammogram[b]		
Yes	68	(29.7)
No	161	(70.3)
Scheduled a mammogram[b]		
Yes	178	(77.7)
No	51	(22.3)
Attended the mammogram appointment[a,b]		
Yes	141	(79.2)
No	37	(20.8)

[a] Frequencies computed for women who scheduled an appointment.

[b] Frequencies computed for women ≥ 40 years (n=229).

Table 3

Frequencies and multivariable-adjusted prevalence ratios for scheduling Pap smear and mammogram appointments, 2003-2009

	Scheduled a Pap Smear		Scheduled a mammogram[a]	
	%	PR (95% CI)	%	PR (95% CI)
Age, years				
19 – 39	76.8	1.00	--	--
40 – 49	90.8	1.14 (1.07, 1.22) ***	82.2	1.00
50 – 88	81.8	1.02 (0.91, 1.13)	68.0	0.92 (0.80, 1.06)
Time since last screening				
< 1 year	70.0	1.00	41.0	1.00
1 – 3 years	87.5	1.18 (1.09, 1.28) ***	88.0	2.09 (1.46, 3.00) ***
≥ 3 years/does not remember	90.5	1.16 (1.05, 1.28) **	76.0	1.77 (1.17, 2.67) **
Never	77.9	1.01 (0.88, 1.17)	85.6	1.90 (1.31, 2.76) **
Knows where to get screening				
No	87.7	1.00	81.4	1.00
Yes	73.6	0.90 (0.83, 0.96) **	69.1	1.07 (0.92, 1.24)
Has lived in Alabama ≥ 5 years				
No	82.9	1.00	75.5	1.00
Yes	75.4	0.96 (0.89, 1.03)	81.7	1.09 (0.96, 1.24)
Has health insurance				
No	82.2	1.00	81.8	1.00
Yes	50.9	0.64 (0.50, 0.84) **	35.0	0.45 (0.26, 0.78) **

[a] Analytic sample only includes women ≥ 40 years (n=229)

PR = Prevalence Ratio, CI = Confidence Interval

-- Not included in the model

* p < 0.05,

** p < 0.01,

*** p < 0.001