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Celebremos La Salud: A Community-Based Intervention For Hispanic And Non-Hispanic White Women Living In A Rural Area

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Abstract

The evaluation for *Celebremos La Salud*, a community randomized trial of Hispanic cancer prevention found no differences in mammography screening rates between intervention and control communities. The goal of the present study was to determine reasons for the intervention's lack of effectiveness. In the first aim, we assessed reach of the intervention. In the second, we assessed which intervention activities were associated with mammography use. In the third, we examined whether factors related to health care access, education level, or age modified the effect of the intervention. Data were used from a post-intervention survey of 20 rural communities in Washington State. Hispanic (N= 202) and non-Hispanic White (N= 389) women, over age 40 formed the sample. Reporting having awareness of or having participated in intervention activities was positively associated with Hispanic ethnicity and intervention group and negatively associated with lack of health insurance and having a lower education level. Only one intervention activity was associated with screening use. Having participated in presentations at organizations was positively associated with having had a mammogram in the previous two years for Hispanic women. No individual level modifiers influenced the intervention's effectiveness. Heavily targeting the intervention to Hispanic women and not reaching as many White women may have contributed to the lack of intervention

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effect. Increasing mammography screening rates among women living in a rural area may require improved access to health care and reaching women with lower education levels and lack of health insurance.

Keywords

Community-based intervention; Mammography; Hispanic; Mexican; Rural

Introduction

In the 2003 National Health Interview Survey, a lower percentage of Hispanic women (63.3%) reported ever having had a mammogram compared to non-Hispanic White women (71.1%) [1]. Similarly, Hispanic women (66.1%) and specifically, Mexican women (63.4%) were less likely to report receiving a mammogram within the past two years compared to Non-Hispanic White women (70.4%) [2]. Even though screening rates have increased for all women, Hispanic women are more likely to present with a later stage at breast cancer diagnosis [3,4].

Understanding ways to promote screening are important among underserved populations. Studies report that economic and social factors can facilitate or act as barriers to breast cancer screening. Barriers found to be more consistently associated with breast cancer screening participation include those related to access. For example, Hispanic women are less likely to report breast cancer screening if they lack health insurance [5–8] or a usual source of health care [6,7,9]. Other factors found less consistently associated with breast cancer screening include an individual's level of knowledge about breast cancer, attitudes and beliefs about cancer, and acculturation level. For example, studies report that Hispanic women are less likely to have a mammogram if they lack knowledge of screening [8,10–12] or have negative attitudes toward screening [6,13,14].

Due to lower screening rates among Hispanic women and the historically lower rates among women living in rural areas [15], *Celebremos La Salud (Celebrating Health)*, a community randomized trial of cancer prevention set out to increase cancer screening behaviors (related to colon, breast, and cervical cancers), increase smoking cessation and healthy dietary changes in a two and a half year intervention among residents in rural communities especially among Hispanics. The *Celebremos La Salud* evaluation found no differences in mammography screening or other behaviors between intervention and control communities and furthermore no differences were found between Hispanic and non-Hispanic White women. These findings have been reported by Thompson et al [16].

In this study we focused only on mammography screening; we add to the previous findings by assessing reasons for the intervention's lack of effectiveness. We hypothesized that the intervention's activities: the hiring of bilingual and bicultural interventionists, small group activities, and working with local organizations may have reached women with less access to health care, less education, and women of Hispanic ethnicity. These latter variables are all known to be associated with lower rates of mammography.

In the first aim, we determined reach of the intervention by assessing which participant characteristics were associated with having reported awareness of or participation in program activities. In the second aim, we assessed whether mammography use was associated with particular intervention activities. In the third aim, we assess whether intervention effects differed among women with varying characteristics i.e., to test for potential modifiers of the intervention including education level, age, health insurance status, and regular access to a clinic or doctor. The intervention was not designed *a priori* to address effect modification by

these factors; therefore, the analyses were considered exploratory and were subject to limitations, such as reduced power.

Methods

Data from the *Celebremos la Salud*, post-intervention survey was used for these analyses. Detailed methods about the intervention and baseline characteristics of this population have been reported elsewhere [16,17]. They are briefly described as follows.

Setting

The study took place in the Lower Yakima Valley of Washington State, a large farmworker community. Twenty rural communities in this area were selected to participate. Criteria for participation required that communities have at least one government facility (i.e., fire station, post office, or school) and that it have at least 300 residents.

Intervention

Celebremos La Salud had three major outcome goals including (1) to increase cancer screening behaviors for colorectal cancer, breast cancer, and cervical cancer, (2) to decrease smoking behaviors, and (3) to promote healthy dietary changes. The program hired bicultural and bilingual interventionists who resided in the community to inform and educate people about cancer prevention lifestyle practices. Intervention activities were designed and carried out at four levels: community, organizational, small group, and individual. At the community level, interventionists participated in community block parties, health fairs, festivals, and fun runs (marathons). At the organizational level, interventionists participated in schools, religious organizations, and worksites, providing information about cancer screening and prevention. Interventionists participated in organizing events with other community programs such as *Wellness on Wheels* (a community based mobile clinic). At the small group level, interventionists conducted *home health parties*. Individuals were asked to invite neighbors and friends to their home, where interventionists would present a talk on breast, cervical, colorectal, or lung cancer. At the individual level, interventionists were trained to provide outreach to individuals about cancer prevention at community sites such as supermarkets and schools.

Study Design

A cross-sectional baseline survey was conducted from October 1998 to May 1999 among the 20 participating communities. Following the baseline survey, communities were matched into pairs by the size of community, percent Hispanics living in the community, and presence of a clinic in the community. Among each of the 10 pairs one was randomized to receive the intervention and the other formed the control group. The *Celebremos La Salud* intervention began in 2000. In 2002, after the intervention, another cross-sectional survey was conducted using a different random sample of participants from the same 20 communities. The post-intervention survey was conducted from October 2002 to February 2003. All research methods and intervention activities for the intervention were reviewed and approved by the Institutional Review Board at the Fred Hutchinson Cancer Research Center, Seattle, WA.

Participant recruitment

Home addresses were obtained from a bulk mailing company and overlaid onto census maps. A random sample of households, over-sampling Hispanics, was selected for an in-person survey. Hispanic households were identified by calculating the percentage of Hispanic residents within each census block using 1990 Census data. The census blocks were arranged into three groups in order of percentage of Hispanic individuals. About 160 households were drawn from each community, with 50% of the sampled households from the census blocks

with the highest percentage of Hispanics, 33% sampled from the census blocks with the second highest percentage of Hispanics, and 17% sampled from the census blocks with the lowest percentage of Hispanics. Within each household, an individual was recruited to participate. Criteria for the selection of participants included that the respondent be 18 years of age or older, had lived in the house for the past week, and was able to respond to the questions. If there was more than one eligible participant, the person whose birthday was first, after December 31 was selected. Participants were interviewed in the language in which they were more comfortable speaking, either English or Spanish.

Post-intervention survey

The post-intervention survey included 104 questions related to sociodemographic characteristics, health care access, smoking behaviors, eating patterns, cancer screening behaviors, awareness of cancer events in the community, and diabetes. Most questions were adapted from other instruments [18,19]. The survey was reviewed by the Community Advisory Board (CAB) members and translated into Spanish by bilingual and bicultural staff to incorporate local terms and assure cultural relevance.

Variables

In this study the unit of analysis is individual women. We include questions from the post-intervention survey related to breast cancer screening, sociodemographic characteristics, and health care. The main outcome variable was report of having had a mammogram in the previous two years. To assess mammography use women were asked if they had ever had a mammogram and how long ago was their last mammogram (months or years). A diagram was presented to female participants showing a woman having a mammogram.

Independent variables included the following: age in years was categorized into three groups (40–49, 50–69, and over 70), education was categorized into four groups (8th grade or less, 9th to no high school diploma, high school diploma or GED, and college or more), household income was categorized in three groups (less than \$15,000, \$15,000 to \$35,000, and more than \$35,000), and health insurance was categorized in four groups (no health insurance, Medicare, public, or private). Screening knowledge was determined by asking participants whether they knew of a test to find breast cancer early and if they knew that the test is called mammogram or clinical breast exam. Women identifying themselves as Mexican, Chicana, or Mexican American were categorized as being of Mexican descent.

Participants were also asked if they had heard of or had participated in program activities about cancer prevention in their community. The intervention activities included: health fairs/block parties, church events, presentations at schools/adult education classes, presentations at organizations, someone coming to participant's home, home health parties, display tables in grocery stores or other businesses, pledge programs, community mailing, and breast cancer topics. We included a "phantom" program not active in communities to assess over-reporting. Responses were measured as yes or no. In addition, we developed two variables that categorized whether women said they had awareness of or participated in at least one or more intervention activities. We used these variables as outcomes for aim 1 (reach of the intervention).

A variable to represent the community rate of mammography use at baseline was included in the analysis to take into account the community effect of screening on individuals. The community specific baseline proportions of mammography use within the past two years were calculated for each of the 20 communities using data from the baseline survey (data not shown).

Analysis

Bivariate analyses using Pearson's chi-squared tests were used to assess differences in participant demographic characteristics by group (intervention/control) and race/ethnicity. Similarly, Pearson's chi-squared tests were used to assess differences in the percentage reporting having had awareness of or having participated in program activities, by group and race/ethnicity.

For multivariate analyses we used logistic regression to estimate coefficients and 95% confidence intervals (CI). Regression models adjusted for community effects on the outcome by treating the community pairs as random effects. The pairs and not the individual communities were the random effect due to the matching of communities during randomization. Analyses were performed using STATA 10 (StataCorp, College Station, TX). To determine reach of the intervention (aim 1), we conducted two separate regression models to assess whether participant characteristics were associated with either reporting awareness of or participation in at least one program activity. Each model included all variables (health insurance, race/ethnicity, age, education, group, and knowledge) to assess whether race alone or sociodemographic characteristics and knowledge were associated with reporting having awareness of or having participated in program activities. To determine the influence of program activities on screening use (aim 2), we assessed the association between reporting awareness of or participation in program activities, for women in the intervention group and having had a mammogram within the previous two years. These models were conducted separately for non-Hispanic White women and Hispanic women, adjusting for education and health insurance status. To test for effect modification (aim 3), we fit models with main effects for group (intervention and control), individual characteristic (i.e. education), and an interaction (group x individual characteristic). The following individual level characteristics were tested as potential effect modifiers: age, education level, health insurance status, and having regular access to a doctor or clinic. We selected these variables based on the hypothesis that the intervention's activities among small groups, local organizations, and hiring bilingual and bicultural interventionists may have reached women with less access to health care, and less educated women. This regression model adjusted for community specific baseline proportions of mammography use and race/ethnicity.

Results

A total of 1,961 participants completed the post-intervention survey for a response rate of 89.4% [16]. In this study, we included a total of 591 Hispanic and non-Hispanic White women over age 40 and excluded data for men (N=879), women under age 40 (N=458), and Native American and Asian or Pacific Islander women (N=33).

There were no differences between participant characteristics at post-intervention among intervention and control communities (data not shown). However, when comparing Hispanic to non-Hispanic White women there were some differences (Table 1). A greater percentage of Hispanic women were younger, had a lower education level, no health insurance, and did not mention the mammogram as an exam to find breast cancer compared to non-Hispanic White women. Among Hispanic participants, 89% reported being Mexican, Chicana, or Mexican-American and 11% percent reported being Spanish-American, American, or other.

Differences by race/ethnicity were found in reporting awareness of or participation in particular intervention programs and activities (Table 2). In intervention communities, awareness rates ranged from 15% to 56% for Hispanic women compared to 8% to 48% for non-Hispanic White women. When comparing differences by the type of activity, a significantly greater percentage of Hispanic women compared to non-Hispanic White women, reported awareness of church events, home health parties, and activities where someone came to the home to provide health

information. A similar percentage of Hispanic and non-Hispanic White women were as likely to have awareness of at least one intervention activity (78% and 72%, respectively), though a significantly greater percentage of Hispanic women reported participating in at least one intervention activity compared to non-Hispanic White women (63% and 48%, respectively). In comparison to rates of awareness in project activities, rates of participation in project activities were smaller, ranging from 8% to 28% for Hispanic women compared to 2% to 18% for non-Hispanic White women. A significantly greater percentage of Hispanic women compared to non-Hispanic White women, reported participation in church events, home health parties, someone coming to the home to provide health information, presentations at organizations, and breast cancer programs or activities.

A greater percentage of Hispanic women had awareness of the *Celebrating Health* program compared to non-Hispanic White women; similarly, a greater percentage of Hispanic women reported having heard about a program called *Healthy Communities*, which was a phantom program. In contrast, a greater percentage of non-Hispanic White women compared to Hispanic women, had heard of *Wellness on Wheels*, a mobile clinic that traveled to communities throughout the Lower Yakima Valley. Women in control communities also reported having heard of or having participated in program activities. For having awareness of programs and activities, contamination ranged from 8% to 26% for Hispanic women and 3% to 26% for non-Hispanic White women. Similarly there was contamination in reporting participation in control communities, ranging from 1% to 12% for Hispanic women and 1% to 13% for non-Hispanic White women.

The first aim was to identify who the intervention reached (Table 3). Reporting awareness of at least one program activity was positively associated with Hispanic ethnicity and intervention group and negatively associated with lower education levels. Reporting participation in at least one program activity was also positively associated with Hispanic ethnicity and intervention group, though it was negatively associated with lack of health insurance and lower education levels.

Although a greater percentage of Hispanic women reported awareness of and participation in program activities, these were not significantly associated with screening use, except for one (Table 4). Among Hispanics in the intervention group, reporting participation in presentations at organizations was positively associated with mammography use within the previous two years. For non-Hispanic White women, associations were not significant.

Table 5 presents results of analyses examining modifiers of the intervention by participant characteristics. There were no individual level variables that modified the effect of the intervention on mammography use.

Discussion

The results of this study indicate that the intervention was more likely to reach Hispanic women as they were more likely to report having awareness of or having participated in intervention activities. In contrast, women less likely to report awareness of or participation in program activities lacked health insurance or had lower education levels. It may be that the community-based intervention was not successful in achieving significant differences in community-level mammography screening between intervention and comparison communities because it was heavily targeted to Hispanic women who accounted for a relatively smaller proportion of the sample and it was less likely to reach non-Hispanic White women.

Awareness of and participation in program activities

Participation in particular intervention activities may have influenced mammography use. Among Hispanic women in the intervention group, participating in presentations at organizations was associated with having had a mammogram in the previous two years. Presentations at organizations, such as day care centers and school parent meetings may have been comfortable environments for women to attend. Further analysis showed that a greater percentage of younger women participated in these presentations (data not shown).

We found that reporting awareness of *Celebremos La Salud* was not associated with mammography use. It may be that the program was not as well known as *Wellness on Wheels*, a mobile clinic that provided health care services throughout rural Washington State. More non-Hispanic White women reported awareness of *Wellness on Wheels*. The mobile van participated jointly in *Celebremos La Salud* activities at our request, but they may have provided services to other communities including our control communities. We did not track their participation at other locations.

Effect Modification

We hypothesized that the intervention's activities among small groups such as *home health parties*, local organizations, and the hiring of bilingual and bicultural interventionists may have influenced screening among women with less access to health care, and lower education levels. We did not find evidence for this hypothesis. Education interventions by themselves may not be enough to change behavior; rather, an educational intervention plus reduction in barriers to health care access may be needed. In a review about effectiveness of mammography interventions among women with historically lower rates of mammography use, results indicated that interventions characterized as access-enhancing were more effective [20]. Furthermore, a combination of access-enhancing and individual-directed strategies was also more effective. Access enhancing interventions include components such as reduced cost mammograms, facilitated scheduling, mobile clinics, vouchers, and transportation to appointments. Individual-directed strategies include one-on-one counseling, tailored and untailored letters and reminders, and telephone counseling. It may be important for future interventions to test what combinations of interventions are most effective for particular settings and populations [21].

Additionally, national and local programs [12,16,21] have influenced the increasing secular trend of breast cancer screening. For example, The Washington State Breast and Cervical Health Program was initiated in the mid-1990s to provide uninsured and underinsured women aged 40–64 years with breast and cervical cancer screening. Baseline screening rates among the 20 communities in our study were somewhat high, ranging from 69% to 88% for ever having had a mammogram and from 61% to 84% for having had a mammogram within the previous two years. In Thompson et al, [16] authors explained issues that may have influenced findings in the *Celebremos La Salud* study, including the increasing secular trend in breast cancer screening, the small intervention dose spread over communities, the cross-sectional assessment, and contamination of the intervention into control communities. Other studies have presented similar issues. For example, *Lucas de Salud*, a three year intervention based in two cities in Texas found no differences between mammography use among intervention and control communities and attributed null findings to the secular trend in breast cancer screening and contamination, as cancer prevention programs had been initiated in the control community [12].

Nevertheless, other programs among Hispanics have provided evidence of positive effects resulting from community-based interventions. The *A Su Salud* program found greater participation in mammography screening among women in the intervention group compared

to the control group [22]. Though, an additional follow-up evaluation among non-compliant women at baseline found limited long term effects on screening rates [23]. Finally, the *Por la Vida* program evaluation found that when the unit of analysis was the participant, a significantly greater percentage of women had a mammogram in the intervention group compared to the control group [24]. This finding was in light of the increasing secular trend in breast cancer screening and the study's short term follow-up evaluation at three months.

Limitations

Our post-intervention survey did not measure beliefs and attitudes which may have explained potential differences among women living in intervention and control communities. For example, intervention participants may have gained knowledge about screening, but negative beliefs or attitudes may have formed or persisted once they learned about breast cancer. In addition, the data was self-reported and may have been biased toward reporting of positive screening behaviors.

Strengths

Researchers have noted the importance of differentiating between Hispanic subgroups included in studies [8]; our study included a sample of Hispanic women who were largely of Mexican descent. Additionally, the intervention was created based on incorporating findings from focus groups prior to the intervention, input from the CAB, and bilingual and bicultural interventionists who lived in the study's communities [16]. Finally, this study provides more in-depth information about what particular program activities were associated with mammography use.

Celebremos La Salud was a cancer prevention intervention among a rural population that provided useful information for future community based programs. The use of intervention activities in small settings, such as presentations at community organizations may help reach Hispanic women. Future interventions may benefit from evaluating the varying components of their intervention activities to assess which ones are most useful. Furthermore, intervention studies should directly address issues of lack of health insurance and health care access in order to increase mammography use among underserved women.

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Table 1
Participant characteristics at post-intervention, by group and ethnicity ^a

Characteristic	Intervention			Control		
	Total N=285 N (%)	Hispanic N=101 N (%)	NHW ^b N=184 N (%)	Total N=306 N (%)	Hispanic N=101 N (%)	NHW ^b N=205 N (%)
Age (years)						
40–49	102(36)	50(50)*	52(28)	90(29)	49(49)*	41(20)
50–69	122(43)	42(42)	80(44)	146(48)	39(39)*	107(52)
70 and over	61(21)	9(9)*	52(28)	70(23)	13(13)*	57(28)
Education						
8th grade or less	70(25)	60(59)*	10(5)	82(27)	69(68)*	13(6)
9th – no high school diploma	67(24)	23(23)	44(24)	69(23)	14(14)*	55(27)
High school diploma/GED	65(23)	12(12)*	53(29)	68(22)	11(11)*	57(28)
Some college or more	82(29)	6(6)*	76(42)	87(28)	7(7)*	80(39)
Household Annual Income						
Less than \$15,000	80(36)	40(50)*	40(28)	104(43)	41(51)	63(39)
\$15,000–\$35,000	84(37)	35(44)	49(34)	85(35)	31(39)	54(34)
More than \$35,000	61(27)	5(65)*	56(39)	51(21)	8(10)*	43(27)
Health Insurance						
None	30(11)	21(21)*	9(5)	38(12)	22(22)*	16(8)
Public	88(31)	54(54)*	34(18)	114(37)	57(56)*	57(28)
Medicare	67(24)	11(11)*	56(30)	69(23)	7(7)*	62(30)
Private	100(35)	15(15)*	85(46)	85(28)	15(15)*	70(34)
Knowledge about mammogram	241(89)	74(80)*	167(93)	267(92)	72(77)*	195(99)

^a Percentages are based on non-missing values

^b Non-Hispanic White

* Significantly different from NHW ($p < 0.05$) by χ^2 test.

Table 2

Percentage of women who reported having awareness of or having participated in particular intervention activities, by group and ethnicity (N=591)

	Awareness				Participation			
	Intervention		Control		Intervention		Control	
<i>Cancer prevention activities</i>	Hispanic N=101 N(%)	NHW N=184 N(%)	Hispanic N=101 N(%)	NHW N=205 N(%)	Hispanic N=101 N(%)	NHW N=184 N(%)	Hispanic N=101 N(%)	NHW N=205 N(%)
Any intervention program or activity ^a	79(78.2)	132(71.7)	45(44.6)	81(39.5)	64(63.4)*	89(48.4)	23(22.8)	56(27.3)
Health fairs or block parties	26(26.0)	55(30.4)	13(13.0)	21(10.2)	11(11.0)	20(11.1)	6(6.0)	6(2.9)
Presentations at schools or adult education classes	27(27.0)	36(19.8)	12(12.0)	14(6.8)	10(10.0)	11(6.0)	4(4.0)	3(1.5)
Someone coming to your door	36(36.0)*	37(20.1)	8(7.9)*	6(3.0)	23(23.0)*	25(13.6)	3(3.0)	5(2.5)
Church events	31(30.7)*	17(9.3)	17(16.8)*	7(3.4)	18(17.8)*	7(3.9)	5(5.0)*	2(1.0)
Home health parties	33(33.0)*	15(8.2)	8(7.9)*	5(2.5)	20(19.8)*	4(2.2)	1(1.0)	1(1.0)
Presentations at organizations	30(29.7)	41(22.5)	10(10.0)	22(10.7)	13(12.9)*	10(5.5)	2(2.0)	6(2.9)
Display tables in grocery stores or other businesses	25(25.0)	48(26.2)	15(14.9)	32(15.8)	16(16.0)	25(13.7)	7(6.9)	13(6.4)
Pledge programs for cancer screening	15(15.0)	24(13.3)	10(9.9)	14(6.9)	8(8.0)	7(4.0)	4(4.0)	6(3.0)
Community mailing	28(28.3)	37(20.9)	16(16.0)	29(14.4)	21(21.0)	32(18.1)	12(11.9)	26(12.9)
<i>Topic</i>								
Breast Cancer Screening	57(56.4)	89(48.4)	26(25.7)	53(26.0)	28(27.7)*	32(17.4)	8(7.9)	16(7.8)
<i>Programs in community</i>								
Celebremos La Salud/Celebrating Health	31(31.0)*	21(11.5)	24(23.8)	30(14.9)				
Wellness on Wheels	31(30.7)*	85(46.5)	29(29.0)*	107(52.2)				
Healthy Communities (phantom program)	26(26.0)*	29(16.0)	19(19.0)	35(17.1)				

^aVariable is a 1 if participant reported awareness of or participation in one or more program activities

* Significantly different from NHW (p<0.05) by χ^2 test.

Table 3
Adjusted regression coefficients for demographic characteristics associated with having awareness of or having participated in program activities (N= 591)

	Awareness ^a β (95% CI)	Participation ^a β (95% CI)
Health Insurance		
None	-0.49(-1.20, 0.21)	-0.83(-1.57, -0.08) *
Public	0.22(-0.31, 0.76)	0.14(-0.38, 0.66)
Medicare	0.13(-0.54, 0.80)	0.31(-0.34, 0.97)
Private	ref	ref
Race/Ethnicity		
Hispanic	0.58(0.01, 1.14) *	0.74(0.20, 1.28) *
Non-Hispanic White	ref	ref
Age		
40–49 years	0.08(-0.33, 0.52)	0.08(-0.35, 0.52)
50–65 years	ref	ref
>70 years	0.19(-0.41, 0.78)	-0.23(-0.82, 0.37)
Education		
8th grade or less	-0.83(-1.54, -0.13) *	-0.84(-1.54, -0.15) *
9th to less high school diploma	-0.37(-0.92, 0.18)	-0.60(-1.14, -0.06) *
high school diploma/GED	-0.12(-0.65, 0.40)	-0.16(-0.66, 0.35)
college or more	ref	ref
Trend test for education levels	-0.25(-0.46, -0.03) *	-0.29(-0.50, -0.07) *
Group		
Intervention	1.40(1.01, 1.79) *	1.16(0.79, 1.54) *
Control	ref	ref
Knowledge about mammogram		
yes	-0.68(-1.41, 0.06)	-0.19(-0.88, 0.49)
no	ref	ref

^aVariable is a 1 if participant reported awareness of or participation in one or more program activities

* P<0.05.

Table 4

Adjusted regression coefficients for having had a mammogram within the past two years and awareness of or participation in program activities, among women in the intervention communities (N=285) ^a

<i>Cancer prevention activities</i>	Adjusted regression coefficients of mammography use β (95%CI)			
	<u>Hispanic</u>		<u>Non-Hispanic White</u>	
	Awareness	Participation	Awareness	Participation
Any intervention program/ activity ^b	0.25(−0.83,1.33)	0.62(−0.31,1.54)	−0.06(−0.80,0.68)	−0.08(−0.77,0.60)
Health fairs/block parties	−0.33(−1.34,0.68)	−0.36(−1.73,1.02)	0.09(−0.64,0.82)	−0.35(−1.35,0.64)
Church events	0.75(−0.20,1.70)	0.76(−0.39,1.91)	0.68(−0.62,19.8)	0.91(−1.28,3.09)
Presentations at schools/adult education classes	0.43(−0.57,1.44)	1.24(−0.47,2.94)	−0.13(−0.93,0.67)	0.32(−1.13,1.77)
Presentations at organizations	0.01(−0.91,0.74)	1.50(0.03,2.98) *	0.05(−0.80,0.87)	−0.36(−1.75,1.03)
Someone coming to your door	0.63(−0.31,1.57)	0.47(−0.55,1.49)	−0.20(−1.01,0.62)	−0.54(−1.48,0.40)
Home health parties	−0.14(−1.04,0.76)	0.99(−0.14,2.12)	−0.09(−1.26,1.07)	0.96(−1.71,3.63)
Display tables in grocery stores/ other businesses	0.24(−0.76,1.25)	−0.18(−1.36,1.01)	−0.08(−0.84,0.68)	−0.34(−1.27,0.58)
Pledge programs for cancer screening	0.67(−0.56,1.90)	1.55(−0.29,3.39)	−0.90(−1.82,0.02)	−0.66(−2.21,0.89)
Community mailing	−0.09(−1.07,0.88)	−0.09(−1.17,0.98)	−0.15(−0.95,0.65)	−0.06(−0.91,0.79)
Breast Cancer topics	−0.24(−1.11,0.63)	0.80(−0.17,1.77)	0.14(−0.53,0.80)	0.01(−0.87,0.87)
<i>Programs in Community</i>				
Celebremos La Salud/ Celebrating Health	−0.03(−0.94,0.86)		−0.08(−1.10,0.94)	
Wellness on Wheels	−0.06(−1.12,1.00)		0.20(−0.46,0.85)	
Healthy Communities (phantom program)	0.02(−0.62,0.66)		0.92(−0.13,1.96)	

^a Adjusted for education and health insurance status.

^b Variable is a 1 if participant reported awareness of or participation in one or more program activities

* statistically significant at $p < 0.05$

Table 5
Effect modification of intervention ^a

Characteristic	Reported mammogram in previous 2 years		Interaction p-value
	Intervention N (%)	Control N (%)	
Age (years)			
40–49	52 (51.0)	54 (60.7)	0.15
50–69	85 (70.3)	103 (70.6)	0.77
≥ 70	37 (63.8)	35 (52.2)	0.21
Education			
Less than HS	73 (55.3)	92 (62.6)	0.36
High school or more	100 (68.0)	99 (64.7)	0.53
Health Insurance			
Yes ^b	166 (66.1)	175 (66.3)	0.85
No	8 (26.7)	17 (44.7)	0.14
Regular access to a doctor or clinic			
Yes	130 (65.3)	150 (65.8)	0.99
No	44 (53.7)	42 (56.8)	0.88

^a Adjusted for community specific baseline proportions of screening use and race/ethnicity

^b Responses include Medicare, public or private insurance