

A TRIAL TO INCREASE MAMMOGRAPHY UTILIZATION AMONG LOS ANGELES HISPANIC WOMEN

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Abstract: The objective of this program was to increase mammography screening rates among Hispanic women through a series of targeted community-wide interventions. A diverse array of outreach efforts was offered by the program to increase awareness and use of screening mammography. Before the program, 12 percent of the Hispanic women surveyed in the intervention community had been screened, compared with 27 percent after the program. There was no change in screening among Hispanic women in the control community (23 percent before and 24 percent after the program). The program demonstrated that the awareness and behavior of "hard-to-reach" underscreened Hispanic women can be changed through intensive targeted outreach and that a church-based cancer control program can play an effective role in the process. This finding has national health policy implications.

Key words: Mammography, utilization, Hispanic women, cancer control, churches.

Breast cancer is a public health problem of enormous proportions. The American Cancer Society (ACS) estimates that in 1997, there were 180,200 new cases of breast cancer in the United States; in this same year, 43,900 women were projected to die from the disease.¹ Yet, when breast cancer is detected early, in its most localized stages, there is more than a 90 percent survival rate five years after diagnosis.¹ The best method for detecting breast cancer early,

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before it is palpable, is mammography. It is a simple and easy procedure and yet it is greatly underused, especially among several vulnerable subpopulations.² The clinical breast examination (CBE) is useful when breast cancers are palpable; a CBE performed by a competent health care provider is thus another essential element of women's cancer detection behaviors.

One of the goals of the national Healthy People 2000 program is to substantially increase the rate of mammography use among all women, and especially among minority women who have been significantly underscreened in the past.³⁻⁸ The specific Year 2000 goal for Hispanic women is that at least 80 percent of those older than 40 will be screened at least once by the end of the century.⁹ In addition, 60 percent of all women older than 50 should have been screened in the past year or two, indicating that they are using screening mammography on a regular basis.⁹

The growing body of literature on cancer among Hispanic people almost exclusively is composed of regionally focused studies in Arizona, New Mexico, Texas, Los Angeles County, New York City, Puerto Rico, and Dade County, Florida.¹⁰⁻²⁴ In addition, the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) registries in selected states offer information on the Hispanic residents of New Mexico and Puerto Rico.¹⁰ The data on these populations have led to a number of important observations about breast cancer among the Hispanic population. For example, Hispanic women have a lower age-adjusted incidence of breast carcinoma than other ethnic groups, but their five-year breast cancer survival rates are similar (whites = 75 percent, African Americans = 63 percent, Hispanics = 72 percent).¹⁰ The data also indicate that rates of postmenopausal breast cancer among Mexican American women have been increasing since the 1940s, and that Mexican American women have the highest rate of multiple primary breast cancers in the United States.¹⁰

These findings strongly suggest the need for further investigation of cancer and cancer control issues within the rapidly growing Hispanic community. Nationally, the Hispanic population grew 53 percent between the 1980 and 1990 census; in California, the growth rate was almost 70 percent. Hispanic residents now constitute 26 percent of the state's population, as compared with 9 percent nationally. Also, most of the state's Hispanic residents are concentrated in southern California, and most are from Mexico, especially in Los Angeles County. This Mexican American group comprises the bulk of the targeted population for the present study.

Although the number of Mexican American individuals is rapidly increasing in this country, studies have only recently reported on their use of breast cancer screening.¹⁰⁻²⁴ The most currently available national data indicate a significant increase in Hispanic women who report regular mammography use, up from 13 percent in 1987—the first year that utilization data were collected nationally—to 38 percent in 1992.²⁵ Although mammography rates no longer differ significantly between racial/ethnic groups, there continue to be vulnerable subgroups within each group. For example, differential rates

continue to exist by poverty, education, and language levels.^{26,27} Urban/rural status is also an important predictor of screening.²⁶ In an earlier analysis, the authors showed that language of respondent was the most important predictor of screening; Hispanic women who spoke only Spanish, for example, had one-third the number of mammograms of English-speaking Hispanic persons (who reported screening rates comparable to other ethnic groups).²⁷ Since Mexican American women, according to census data, are much more likely than other Hispanic subgroups to be Spanish speaking, impoverished, and undereducated, the present authors concluded that this group in particular need special outreach programs.

Needs assessment and goal setting

The Community Mammography Project at the University of California at Los Angeles was funded by the National Cancer Institute (NCI) in 1987 to conduct a four-year trial to promote the use of screening mammography in three Los Angeles County communities with similar socioeconomic characteristics. An initial random digit-dialed (RDD) survey of all women older than 35 in three communities (two treatment and one control community) was used as a preliminary needs assessment tool to determine the degree of mammography use by different age and racial/ethnic groups. Thus, the survey also served as the first wave in a two-wave pre- and postevaluation.²⁸

Women older than 35 were selected as the target sample because at the time of the study screening guidelines applied to women of that age-group. For example, a baseline mammogram was recommended for women between the ages of 35 and 40, regular screening mammograms every one to two years were recommended for women in their forties, and an annual screening exam was recommended for women older than age 50. Although women older than age 50 were far more likely to be diagnosed with breast cancer, there was great interest in getting increased numbers of younger women into regular screening because of their low (at the time) screening rates.

The survey showed that two groups of women in the intervention communities were at particular risk of underuse of mammography: (1) women living in the poorer of the two communities and (2) Hispanic women in general. The finding that these two groups are at higher risk of the underuse of mammography was similar to those of other studies.²⁹⁻³³ Only 21 percent of the women in the poorer community had received a mammogram in the previous year, compared with 42 percent of the women in the more affluent intervention community. Furthermore, only 18.7 percent of the Hispanic women in both intervention communities had received a mammogram in the previous year. Those who only spoke Spanish had an even lower rate of mammography (only 13.8 percent had ever had a mammogram).²⁷ The survey also revealed that the Hispanic women had more anxiety, fear, cost concerns, and embarrassment about mammography than other ethnic groups, which may represent barriers to screening.^{22,23} Since resources were limited, the project staff decided to target

their outreach efforts to the less affluent citizens and especially to the Hispanic community.

Research questions and intervention model

The needs assessment led to two primary research questions: (1) Could a community-wide series of interventions designed to specifically reach Hispanic women bring their awareness of screening and their screening rates up to a level comparable with those of Anglo- and African American women? (2) Would a church-based intervention that included breast-screening services be acceptable to Hispanic women? Church-based health programs have been successfully tested with African American but not with Hispanic women.

The intervention was based on the Health Belief Model (HBM), which includes increasing awareness of vulnerability as well as cues to action.³⁴ Women were informed about their risk status and the prevalence of the disease. They were also encouraged to ask their physicians for a referral and given information about convenient screening facilities. Thus, both educational and behavioral goals were embedded in the intervention.

To address the first research question, that is, to determine whether Hispanic women's awareness of screening and their screening rates could be significantly increased, information about breast cancer was provided by the project team through a wide range of outreach activities. For example, permission was obtained from the Los Angeles County school system administration to conduct special classes about breast cancer and screening in English as a second language (ESL) classes. Although young Hispanic men were the predominant students in those classes, our health educators emphasized that older women such as the students' mothers should be informed about their need for screening; the message was received enthusiastically by the students since Hispanic people are generally very family oriented. Brochures in Spanish and English and other educational materials were distributed to the students to take home to family members. In addition, project staff set up booths at health fairs, distributing material and answering questions. Health educators conducted classes discussing breast cancer risk and screening in many community settings (senior centers, community centers, beauty shops, and sites that served as meeting places for Hispanic women). Pharmacies enthusiastically agreed to display the project's colorful, bilingual posters with the slogans, "You ought to be in pictures" and "Once is not enough." Inserts in Spanish were placed in Spanish and English newspapers. Bilingual brochures were widely distributed to all offices of primary care providers in the community and replenished as needed. In addition to these activities, our major outreach effort centered on the church intervention described below.

The church intervention

The majority of health-related church intervention efforts reported in the literature have been initiated in the black community to target high blood

pressure and have involved training church volunteers as blood pressure measurement specialists.³⁵⁻⁴² For example, the North Carolina Baptist Church Program is a statewide project designed to train 3,000 church members from 1,000 churches as health and human services advisers.⁴¹ In Rhode Island, the Health and Religion Project is an experiment using churches as sites for health promotion programs related to cardiovascular disease.⁴² Few church-based programs have involved Hispanic participants or focused on cancer control.⁴³ One of the few church interventions to involve Hispanic residents was conducted in 24 churches in the Los Angeles area; its objective was to increase cervical cancer screening in Hispanic and African American women.⁴³ Overall, 90 percent of the women targeted for screening presented for testing, although Hispanic women were much more responsive than African American women to this church-based effort.⁴³

To address our second research question (i.e., to determine whether a church-based breast-screening project would be acceptable to Hispanic women), the project team held a breast health day at a large, centrally located Catholic church in the poorer community. The event was timed to coincide with National Breast Cancer Awareness Month (October) and its attendant publicity. The intervention took nine months to implement (details can be obtained by contacting the first author). The project team arranged for low-cost subsidized mammograms through a local branch of the ACS, which had access to a special outreach fund. Screening mammograms in the local community generally ranged from \$50 to \$150. The authors determined with the priest that \$15 would be an affordable price for his parishioners. A mobile mammography service, contracted by the ACS, was enlisted to appear on the screening day, which was set for a Sunday.

The intervention included supporting educational activities, as well as the mammography service. A general bilingual mailing to all church households (about 2,300) provided information about the breast health day and also included an informational brochure on mammography designed to include all facets of the HBM.^{34,44} Three presentations were scheduled after two Spanish masses and one English mass. Two presentations were delivered by staff members, one by a Hispanic physician from the community. An information sheet (English on one side, Spanish on the other) was distributed at the church on the day of the event. The mammography service and the presentations were described in the flyer, which was designed to appear to be from the church (as was the bilingual mailing) and not from a university-based research project.

The breast health day was very well attended. Despite torrential rains, more women attended than had registered. There were 82 women who received mammograms (57 percent of whom had never been screened); 54 percent of the women spoke only Spanish, 46 percent were older than age 50, and 17 percent were older than 65. There were 75 negative mammograms, 7 positives that required follow-up, and 1 confirmed cancer. The anecdotal feedback was that it was the best attended community outreach activity that the ACS had ever been involved with in Southern California; the project later received an ACS award.

Method

At the end of the two-year intervention phase, an assessment was made as to whether there was an increase in mammography awareness and use with a special interest in Hispanic women's utilization rate in the targeted treatment community compared with the control community. Cross-sectional, bilingual, RDD surveys (one in 1988 and another in 1990) were conducted of about 35 minutes in duration. The response rates were identical for both surveys (85 percent in 1988 and 84.4 percent in 1990). The total sample size in 1988 was 1,057; 150 (14.2 percent) were Hispanic survey participants. In 1990, there were 1,005 respondents in the total sample; 197 (19.6 percent) were Hispanic because the community had become increasingly Hispanic in composition between 1988 and 1990. Women were considered eligible to participate if they were living in one of the appropriate project communities and if they were age 35 and older, with no upper age limit. Table 1 presents demographics for the Hispanic women only, the target of the project's intervention efforts, in the intervention and control communities.

Survey constructs included demographics; usual sources of care; insurance type; sources of health information, breast cancer history; mammogram and CBE experience; reasons for not having mammograms; communication of the physician about screening; knowledge of screening guidelines and risk factors; perceived efficacy, susceptibility, and advantages and disadvantages of screening; and intentions for getting mammograms.

Differences between the two communities were assessed at times 1 and 2, and change over time within the communities using chi-square expectancy tests. A logistic regression analysis was performed using the yes/no response to "Did you have a mammogram last year?" as the dependent variable. Predictors included age, education, whether they had the interview in Spanish or English (language preference/acclimation), site, and year of interview. Income was not included in the final model because this variable had an excessive number of missing data values. Thus, education was used as a proxy for income. It is known, however, from other survey data collected by the first author in this region that most of these Hispanic women are likely to be low-income. A current survey has identified that more than 60 percent have household incomes less than \$15,000.

Results

Preliminary demographic comparisons of the 1988 and 1990 surveys within communities. To rule out changes across time in age, marital status, and educational distributions influencing mammography rates of the Hispanic women in either the intervention or control communities, the 1988 and 1990 Hispanic telephone survey participants were contrasted by community using chi-square expectancy analysis. Neither the intervention nor the control communities demonstrated different distributions over time in their age ($p =$

TABLE 1
DEMOGRAPHIC CHARACTERISTICS
OF HISPANIC WOMEN IN STUDY SAMPLE

	PERCENTAGES			
	1988		1990	
	INTERVENTION n = 75	CONTROL n = 56	INTERVENTION n = 101	CONTROL n = 70
Age				
35-39	31	32	32	37
40-49	41	29	46	24
50-59	16	18	15	26
60-69	10	11	7	10
70 and older	3	11	1	3
Education				
< 8 years	47	39	48	32
8-11 years	15	11	20	6
High school graduate	26	26	22	31
Some college	7	11	4	21
College graduate	5	4	5	3
Some graduate training	0	9	2	7
Marital status				
Married	68	58	69	71
Widowed	7	11	12	9
Divorced	11	13	5	15
Separated	5	6	7	2
Never married	9	13	8	4
Language of interview*				
English	28	63	14	40
Spanish	72	37	86	60

* $p < 0.001$.

0.87 intervention, $p = 0.60$ control), marital status ($p = 0.49$ intervention, $p = 0.28$ control), or education ($p = 0.67$ intervention, $p = 0.54$ control). Thus, for the most part, survey participants in each community resembled each other quite closely demographically, at the two points in time (see Table 1).

Demographic comparisons between intervention and control communities. The women from the two communities were also compared within time to see whether there were any preexisting demographic differences between the intervention and control groups in 1988 or 1990. In 1988, they did not significantly vary in age ($p = 0.29$), education ($p = 0.13$), or marital status ($p = 0.84$). In 1990, they did not significantly vary in marital status ($p = 0.09$). However, the intervention community was less educated ($p < 0.001$) and younger ($p = 0.05$). Neither of these differences would have contributed to more mammograms in the intervention community. In fact, it is likely that they would have exerted a negative effect.

Language preference. More surveys were conducted in Spanish in 1990 (126/171) than were conducted in 1988 (75/131, $p < 0.01$). This was probably due to the increasing number of Hispanic individuals moving into the greater Los Angeles area during the two-year period. This change was not in a direction that might have been associated with more mammograms in the follow-up survey year, since in 1988 it was found that Spanish language preference was associated with fewer mammograms.²⁷ The intervention and control communities individually also had more Spanish-language interviews in 1990 than they had in 1988 ($p < 0.05$ in each community). In both 1988 and 1990, the intervention community had more interviews in Spanish ($p < 0.001$).

Outcome measures

There were three outcome measures of interest in this project: Hispanic women's rates of awareness of mammography, their rates of ever having had the procedure, and their having had the procedure in the past year, the year of the project's intensive outreach to the Hispanic community.

Mammography awareness. In 1988 and 1990, the women were asked whether they had ever heard of a mammogram. There was no significant difference over time for the Hispanic women in the control community (75 percent in 1988 and 87 percent in 1990, $p = 0.08$). However, the intervention community Hispanic women reported a considerable improvement in whether they had heard of mammograms (63 percent in 1988 and 82 percent in 1990, $p < 0.01$). Within time (years), there were no significant differences between the control and intervention communities (1988, $p = 0.13$; 1990, $p = 0.38$).

Utilization—ever had a mammogram. In 1988, 39 percent of the Hispanic women in the control community reported having had at least one mammogram, compared with 20 percent in the intervention community—a significant difference ($p = 0.02$). In 1990, there was no longer a significant difference between the groups. Among women in the intervention community, 44 percent reported ever having had a mammogram ($p = 0.30$), compared with 36 percent in the control community. As these figures show, there was no significant difference across time in the control group in terms of ever having had a mammogram ($p = 0.57$); however, the women in the intervention group demonstrated a significant improvement across time ($p = 0.02$).

Utilization, mammogram in previous year. This measure was a crucial determinant of the success of the yearlong targeted outreach program designed to reach Hispanic women. It was the major behavioral outcome measure in the study. In 1988, 23 percent of the Hispanic women in the control community reported having a mammogram in the previous year ($p = 0.09$), compared with 12 percent in the intervention community. In 1990, 24 percent of the women in the control community reported having a mammogram within the year ($p = 0.69$), compared with 27 percent of the women in the

TABLE 2
LOGISTIC REGRESSION ANALYSIS OF MAMMOGRAPHY
USE IN PREVIOUS YEAR AMONG HISPANICS, 1988-1990:
INTERVENTION VERSUS CONTROL COMMUNITY

INDEPENDENT VARIABLE	p VALUE	ODDS RATIO	
		VALUE ^a	95 PERCENT CONFIDENCE INTERVAL
Age			
35-39		1.00+	
40-49	0.112	2.879	0.781-10.617
50 and older	0.293	2.041	0.541-7.701
Education			
0-7 years		1.000+	
8 or more years	0.218	2.460	0.587-10.307
Hispanic group			
English speaking		1.000+	
Spanish speaking	0.945	0.948	0.208-4.322
Site			
Control		1.000+	
Intervention	0.438	0.630	0.196-2.023
Year of intervention			
1988		1.000+	
1990	0.896	1.153	0.136-9.790
Interaction terms			
Intervention Site × Group = Spanish Speaking	0.390	0.564	0.153-2.082
Year 1990 × Group = Spanish Speaking	0.474	0.559	0.114-2.751
Year = 1990 × Intervention Site	0.027	4.624	1.191-17.949

^a A "+" denotes the reference group category in the logistic regression analysis.

intervention community. The difference between 1988 and 1990 for the control community was not significant ($p = 0.89$); the improvement in the intervention community was significant ($p = 0.02$), showing that the interventions had an effect.

Logistic regression. The only significant predictor of a recent mammogram (last year) was the Year (1990) × Site (intervention) interaction ($p = 0.05$). Table 2 details the p values for all predictors as well as odds ratios.

Discussion

Although the Hispanic population may be perceived as "hard to reach," the success of this program demonstrated that underscreened groups can be accessed and influenced through intensive, well-planned, and theoretically

based outreach activities. Although it cannot be known which of the several outreach activities in the intervention package was most successful in increasing the screening awareness and rates of Hispanic women, the breast health day was perceived by the project outreach team to be the most enthusiastically received activity by the target group. Known barriers revealed in the baseline survey^{22-24,27-28} such as embarrassment and anxiety were anticipated and addressed to the best of the team's ability. Privacy was maintained, cost concerns were addressed, and sufficient bilingual capability was made available to encourage good communication between the project and the women. More important, the mammography equipment provided for the project was used to maximum capacity and mammograms were provided to many previously unscreened women. It was concluded that church-based health outreach programs can effectively serve underscreened women and that focusing on a priority group, such as the Hispanic female population, can achieve good results in a community-wide program.

The results of analyses using the HBM suggest that increasing participants' awareness and perceived susceptibility and providing cues to action can help increase mammography use. However, certain conditions must be met. The outreach effort must gain the pastor's acceptance of the program and identify barriers such as modesty, cost, language, and confidentiality, and address these issues. The language barrier is an especially important one that must not be underestimated. Women who spoke only Spanish were far more likely to be unscreened; therefore, having full bilingual capability, both in written and oral capacities, was critical for meeting our goal of reaching those most in need.²⁷

It was also concluded that Hispanic women can be just as receptive to church-based health promotion opportunities, such as screening mammography, as African American women historically have been to church-based activities that involve the reduction of cardiac risk factors.³⁵⁻⁴² The church proved to be an ideal setting for the Hispanic population, and this pilot program could serve as a model for future health promotion programs in church settings for the Hispanic community and others.

Study limitations. Because of the nature of the RDD survey design, the sample size of the Hispanic group was small, a random sample of all women older than 35 in the target community (the majority of the sample consisted of Anglo- and African American women). The project team chose to focus efforts on the most unscreened racial/ethnic group—Hispanic women—as determined by the baseline needs assessment.

In addition, the study involved a cross-sectional sample observed at two points during the intervention; a cohort of women were not followed and evaluated for changes. However, cross-sectional samples are used routinely in cancer-screening programs to evaluate program effectiveness.⁴⁵

The study is also limited by the composition of Hispanic women who tend to reside in Southern California—Mexican Americans and others from Central

America. Findings cannot be generalized to other Latino subgroups, such as those from Cuba and Puerto Rico who are more likely to have more education and income levels than the Hispanic population of southern California. Finally, multiple efforts were employed to increase awareness and use of screening; the authors cannot be certain of the relative effectiveness of each effort, although the church intervention certainly provided the most tangible and measurable results.

Conclusion

The most important lessons learned in this community-based program was the importance of targeting high-risk subgroups so that limited resources could effect behavioral change primarily in those groups. The usual community-based strategy is to attempt changes across the community, which is exceedingly difficult to achieve due to limited outreach resources and a limited understanding of community dynamics. This study used the "epidemiologic model" by targeting the Hispanic population since a needs assessment analysis of the survey baseline data had documented their low screening rates, especially for the Spanish-speaking Hispanic individuals. Program resources were then focused entirely on Hispanic women in the second intervention year.⁴⁶ The project team realized that an amorphous outreach to the entire community, regardless of member's risk status, would be expensive and unlikely to produce desired changes regarding rates of breast cancer screening by the most unscreened, Hispanic women.

A second important lesson learned was that a church-based cancer control program is feasible, and, in conjunction with other activities, can increase screening rates among a hard-to-reach population. These findings have important national health policy implications in a country that is increasingly multicultural and diverse. It is projected that by the year 2030, 20 percent of the U.S. population will be Hispanic.⁴⁷ These demographic facts should not be ignored. As a result of the apparent success of this pilot project, a large NCI-funded, church-based mammography program is currently being offered in 45 churches in 30 Los Angeles communities to further test the strength of church-based cancer control programs across race, language, and income groups. Results of this program, which will not be known until the end of the century, should provide more definitive answers on the effectiveness of churches in increasing breast cancer screening among the poor and underserved.

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