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Evaluating a Tailored Intervention to Increase Screening Mammography in an Urban Area

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This study was conducted to evaluate the effectiveness of a culturally and ethnically tailored telephone intervention to increase the rate of screening mammography among women.

Method: The study was conducted over a four-year period, 1996 and 2000. Participants were recruited using Computer Assisted Telephone Interviewing (CATI) software and random-digit dialing (RDD). Study eligibility criteria included living in the King/Drew Medical Center service area in Los Angeles, having an operable telephone, being female ≥40 years old and not having had a screening mammogram in the past year. Four-hundred-thirty respondents were randomly assigned to the intervention and comparison groups. English and Spanish focus-group-tested tailored interventions were administered telephonically by trained interviewers. African Americans and Latinas constituted 83.0% of the sample at assignment and 83.8% at six-month follow-up, which is representative of the study area.

Results: The main outcome variable of interest in this study was having a screening mammogram during the time interval between baseline and the six-month follow-up assessment. Multiple logistic regressions that revealed factors predicting the outcome variable included: 1) age (p≤0.05, OR=2.22, CI 0.98–5.0); 2) study group (p≤0.05, OR=1.76, CI 1.06–2.92); 3) prior mammograms (p≤0.05, OR=2.51, 1.39–4.56); and 4) and knowledge of the age when a woman should begin getting mammograms on a regular basis (p≤0.05, OR=0.55, 0.33–0.92).

Conclusion: Tailored telephone counseling increased the instances of screening mammograms by nearly 8% in the intervention group at follow-up. The results of this study confirm previous findings regarding the impact of structural and behavioral factors related to screening mammography.

Keywords: tailored intervention ■ screening mammography ■ mammograms ■ health promotions ■ urban areas

INTRODUCTION

The 2002 Annual Report to the Nation on the Status of Cancer states that overall cancer incidence rates stabilized, while overall cancer mortality rates decreased for both men and women between 1973 and 1999.[1] The report utilized the Surveillance, Epidemiology and End Results (SEER) Program and other databases to calculate the trends. The report noted that the breast cancer incidence rate increased in women aged 50–64 years, while the mortality rate decreased in each age group. Despite the continuing dilemma regarding the benefits of screening mammography,[2] early diagnosis resulting from breast self-examinations, clinical breast examinations and mammograms continues to be the most effective means of fighting breast cancer mortality.[3]

Blackman et al.[4] reported that 84.8% of women aged ≥40 had at least one mammogram in their lifetime in 1997. The American Cancer Society reported that in 1998, 68% of whites, 66% of blacks, 61% of Asians/Pacific Islanders, 61% of Hispanics and 45% of American Indians/Alaska Natives had a mammogram within the past two years.[5] A 1997–1998 random-digit-dialing telephone survey of women ≥40 years old living in south Los Angeles found that 81.1% reported having at least one mammogram in their lifetime but that only 67.8% of them had a mammogram within the two years preceding the survey.[6] These findings suggest that until more women comply with regular screening as recommended by the American Cancer Society, the goals of public health cannot be achieved.[7-11] Further, these findings suggest the need to develop interventions that will inform all segments of the population of the benefits of screening mammograms.

Salzmann and colleagues[12] and Mandelblatt and colleagues[13] weighed in on the controversy of

extending screening mammography guideline to include women 40–49 years of age. Historically, African-American women have experienced higher incidences of breast cancer than white women below age <50 years.[13] These two studies reached quite different conclusions. In 1998, Salzmann et al.[12] concluded that the cost-effectiveness of screening mammography in women 40–49 years of age is almost five times that in older women. When breast cancer screening policies are being set, the incremental cost-effectiveness of extending mammographic screening to younger women should be considered. In 2004, Mandelblatt et al.[13] concluded that except in pockets of unscreened or high-risk women, further investment in interventions to increase screening are unlikely to be an efficient use of resources. Ensuring that African-American women receive intense treatment seems to be the most cost-effective approach to decreasing the disproportionate mortality experienced by this population.

A 2002 national telephone survey[14] sought to determine if women between the ages of 40 and 69 were confused about the guidelines for getting mammograms. This survey of 733 women found that a majority of women were not confused, but minority women and women with lower education levels were more likely to report being unclear about the guidelines. The authors concluded that the results of this study suggests that the controversy surrounding the effectiveness and cost-effectiveness of screening mammograms and the age at which women should begin have them has no affect on their adherence to screening mammography guidelines. However, they did state that some women lack the information needed to make informed decisions about mammography.

This study was designed to accomplish two specific objectives. The first objective was to determine the prevalence of screening mammography among all women ≥40 years old living in an economically disadvantaged, medically underserved, inner-city community of Los Angeles. The second objective was to assess the effectiveness of a culturally and ethnically tailored telephone intervention designed to increase the rate of screening mammography in African-American and Latina women in this population. The results of the first objective involving 505 survey respondents were reported earlier.[6] This manuscript reports the results of the second objective involving 430 study participants (Table 1).

METHODS

The study was conducted over a four-year period between 1996 and 2000. Participants were recruited using Computer Assisted Telephone Interviewing (CATI) software and the random-digit-dialing (RDD) method during 1997 and 1998. An independent firm conducted the community-based RDD survey using methods previously described.[6] Study eligibility criteria included living in the King/Drew Medical Center service area, having an operable telephone, being female ≥40 years old and not having had a screening mammogram in the past year. Phone calls to enroll participants were initiated to the prequalified sample approximately one year after the completion of the community-based RDD survey. Participants' enrollment continued for six months and follow-up telephone calls were made over the subsequent six months. In summary, the timeline included a 13-month community-based RDD survey period; a 12-month planning and development preintervention period; a six-month study enrollment period; a six-month follow-up period; and an 11-month data analyses, reporting and dissemination period.

Intervention Theoretical Framework

The Adherence Model, an integrated theoretical approach, was used to conceptualize our research and to maximize the effectiveness of our intervention.[15-17] This model incorporates elements of the Health Belief Model,[18-20] the Theory of Planned Behavior,[21]

Table 1. Demographic characteristics of study participants (n=430)

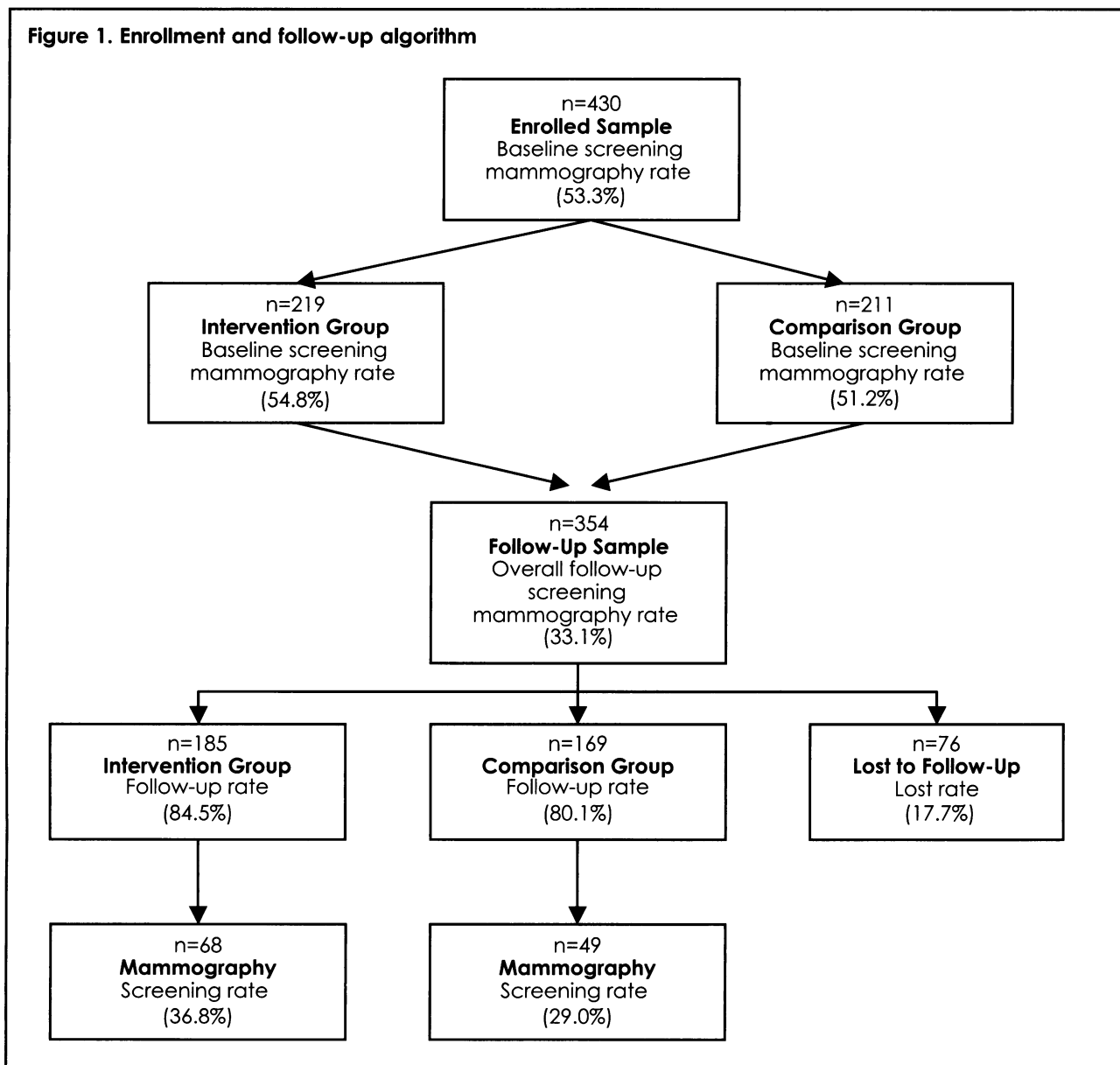| Variable	Study Sample	
	n	%
Age		
40–49 years old	243	56.5
50–64	116	27.0
≥65	67	15.6
Missing	4	0.9
Mean=51.9		
SD=11.5		
Race/Ethnicity		
African-American	164	38.1
Hispanic	193	44.9
Other	73	17.0
Education		
High-school grad or less	262	60.9
Post-high school	168	39.1
Income		
$0–$19,999	201	46.7
$20,000–$29,000	140	32.6
Not stated	89	20.7
Health Insurance		
Yes	277	64.4
No	153	35.6
Marital Status		
Married or living as married	223	51.9
Not Married	207	48.1

the Transtheoretical Model,[22] the Social Learning Theory[23] and the Prospect Theory.[24] The Adherence Model emphasizes identifying barriers to mammography, overcoming those barriers and identifying support for adherence to mammography guidelines.

The Health Belief Model holds that a person will take a health-related action if that person feels that a negative health consequence can be avoided. The Theory of Reasoned Action suggests that the most important determinant of a person's behavior is behavior intent. The individual's intention to perform a behavior is a combination of attitude toward performing that behavior and subjective norm. The Transtheoretical Model conceptualizes behavior around stages of change. These stages represent ordered categories along a continuum of motivational readiness to change a problem behavior. The Social Learning Theory focuses on the learning that occurs within a social context. It considers that people learn from one another, including such concepts as observational learning, imitation and modeling. Finally, the Prospect Theory is an alternative theory of choice under conditions of risk and deviates from expected utility theory by addressing that people evaluate choices with respect to gains and losses from a reference point. They tend to overweigh losses with respect to comparable gains and engage in risk-averse behavior with respect to gain and risk-acceptant behavior with respect to losses. Elements from each of these theories were used to help guide our inquiry.

Intervention Materials

A total of six focus groups (three with African-American and three with Latina women) were con-

Figure 1. Enrollment and follow-up algorithm

n=430
Enrolled Sample
Baseline screening
mammography rate
(53.3%)

n=219
Intervention Group
Baseline screening
mammography rate
(54.8%)

n=211
Comparison Group
Baseline screening
mammography rate
(51.2%)

n=354
Follow-Up Sample
Overall follow-up
screening
mammography rate
(33.1%)

n=185
Intervention Group
Follow-up rate
(84.5%)

n=169
Comparison Group
Follow-up rate
(80.1%)

n=76
Lost to Follow-Up
Lost rate
(17.7%)

n=68
Mammography
Screening rate
(36.8%)

n=49
Mammography
Screening rate
(29.0%)

ducted in English and Spanish using similar protocols with each racial and ethnic group to insure that the intervention materials were culturally appropriate. Experienced facilitators conducted the focus groups and participants were given refreshments and $25 each. The focus groups protocols included an introduction of the facilitator and the participants; a discussion of the project; an exploration of the focus group participants' knowledge, attitudes and beliefs about breast cancer; a discussion of the specific facts and figures about breast cancer among African Americans and Latinas; a discussion of what it would take for participants to have screening mammograms; and a discussion of counseling strategies to overcome various barriers to screening mammograms. The focus group facilitators also inquired about the appropriate length for the telephone intervention and asked the participants to review and comment on brochures that we anticipated using. Screening mammography brochures, in both English and Spanish, were selected and purchased. In addition, we collaborated with the Los Angeles Regional Coalition of the California Breast Cancer Early Detection Program that provided shower cards in English and Spanish.

A program letter was developed to thank the respondents for participating in the study. This letter served as a reminder for respondents of their earlier phone conversation with study staff about the importance of getting screening mammograms and what they said they would do. Shower cards and screening mammography brochures were included in the letter to all respondents in the intervention group. These cards and brochures were designed specifically for African-American and Latina women and describe in words and graphics how to conduct breast self-examinations.

We offered to schedule low- or no-cost mammograms at three community-based sites that had agreed to provide them to study participants. These appointments were included in the letters sent to study participants who expressed an interest in this service.

Tailored Telephone Counseling

Health messages can be generic, targeted to subsets of the population or tailored for individual recipients.[25] Tailored messages incorporate sociocultural and psychological factors that have been shown to increase compliance with health behavioral objectives and they have been examined in a variety of ways.[26-29] Respondents who completed the community-based survey and agreed that we could call them a second time were randomly assigned to the intervention and comparison groups. Mature African-American and Latina women counselors were trained prior to study implementation to follow scripted telephone protocols. These protocols were designed to inform women of the recommended age to get regular screening mammogram, to assess their intentions to obtain mammograms within the next three months and to schedule screening mammograms for women who requested this service. The scripts were designed with input from the focus groups to allow counselors to identify and overcome barriers unique to each participant that kept her from getting a screening mammography. Trained study staff conducted barrier counseling by telephone and mailed intervention materials to all respondents in the intervention group (Table 2). The comparison group participants also received phone calls but only to inquire if they had received screening mammograms since the enrollment call. Project staff was careful not to conduct barrier counseling with the comparison group participants during this conversation.

A quality-control protocol with random call monitoring was implemented to assure that the intervention was delivered as intended.

Cost-Effectiveness of Outreach Interventions

Whereas cost-effectiveness analyses were not conducted in this study, a plethora of such studies has been conducted on this topic in various settings to promote compliance with screening mammogra-

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Table 2. Intervention components

- Counseling regarding the importance of requesting healthcare providers to examine their breasts during office visits.

- Counseling regarding the importance of complying with mammography screening guidelines.

- Scheduling a low-cost or no-cost mammography appointment within six months for those who express an interest; others were asked to schedule an appointment with their healthcare provider and have a mammogram within six months.

- Mailing a hard copy of the mammography appointment at least two weeks before it is scheduled.

- Mailing a program letter, screening mammography brochure and a shower card within two weeks of counseling to all participants in the intervention group to reinforce the counseling messages regarding breast examinations.

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phy.[30-37] In general, these studies have concluded that tailored phone interventions and other methods of outreach are cost-effective in motivating noncompliant women to get screening mammograms.

Follow-Up Questionnaire

The follow-up questionnaire was administered to both the intervention and comparison groups and

took approximately five minutes to complete. It was designed to assess the extent to which participants obtained screening mammograms in the six-month postintervention period. We also inquired of their reasons for having or not having screening mammograms during this period and their perceptions of the intervention materials.

Table 3. A comparison of study participants who had a screening mammograms during the six-month follow-up period (n=117) and those who did not (n=237). Seventy-six participants were lost to follow-up at six months.

Variable	Screened n=117 n (%)	Not Screened n=237 n (%)	P Value
Study Group			
Intervention	68 (36.8)	117 (63.2)	0.121
Comparison	49 (29.0)	120 (71.0)	
Age			
40–49	73 (35.6)	132 (64.4)	0.203
50–64	30 (33.7)	59 (66.3)	
≥65	14 (23.3)	46 (76.7)	
Ethnicity			
African-American	38 (29.9)	89 (70.1)	0.296
Hispanics	63 (37.1)	107 (62.9)	
White/others	16 (28.1)	41 (71.9)	
Education			
High school or less	71 (31.4)	155 (68.6)	0.385
Post-high school and more	46 (35.9)	82 (64.1)	
Income			
<$20,000	54 (33.1)	109 (66.9)	0.726
$20,000	38 (35.2)	70 (64.8)	
Marital Status			
Married or living as married	68 (36.0)	121 (64.0)	0.210
Other	49 (29.7)	116 (70.3)	
Who paid for last Mammogram			
Yourself	13 (54.2)	11 (45.8)	0.291
Health insurance	67 (42.7)	90 (57.3)	
Doctor Recommended having a Mammogram			
Yes	67 (38.5)	107 (61.5)	0.032
No	50 (27.8)	130 (72.2)	
Doctor Recommendation Caused You to Get Mammogram			
Yes	42 (51.9)	39 (48.1)	0.001
No	25 (26.9)	68 (73.1)	
Knowledge of Age to Begin Having Regular Mammogram			
<39 years	71 (39.4)	109 (60.6)	0.006
≥40 years	37 (25.2)	110 (74.8)	
Ever Had a Mammogram			
Yes	80 (44.2)	101 (55.8)	0.000
No	37 (21.4)	136 (78.6)	

Follow-Up Telephone Interviews

Telephone interviews were successfully completed with the 354 of the 430 study participants (82.3%) at six-month follow-up. Seventy-six (17.7%) participants were lost to follow-up for a variety of reasons, including changing residents, disconnected telephones, refusing to participate further and death. This resulted in the completion of interviews with 185 of 219 (84.5%) participants in the intervention group and 169 of 211 (80.1%) participants in the comparison group.

Chi-squared tests revealed that variables associated with the loss to follow-up were race or ethnicity, education and who paid for the last mammogram.

African-American women (23.0%), respondents who were more educated (22.9%) and those who paid for their last mammogram (33.3%) were more likely to be among those lost to follow-up.

Data Analysis

Various statistical tests were used to analyze the database. Frequency distributions of sociodemographics, attitudinal and behavioral practices were calculated. In addition to descriptive analyses, Chi-squared tests were conducted to determine associations between the dependent variable (obtaining screening mammograms at follow-up) and all potential covariates (independent variables). Although

Table 3 continued

Variable	Screened n=117 n (%)	Not Screened n=237 n (%)	P Value
Perceived Efficacy of Mammography			
Effective	103 (33.0)	209 (67.0)	0.967
Not effective	14 (33.3)	28 (66.7)	
Perceived Susceptibility			
High	72 (36.2)	127 (63.8)	0.156
Low	45 (29.0)	110 (71.0)	
Perceived Efficacy of Early Detection			
High	109 (33.5)	216 (66.5)	0.514
Low	8 (27.6)	21 (72.4)	
Cost Is a Barrier			
High	58 (31.0)	129 (69.0)	0.389
Low	59 (35.3)	108 (64.7)	
Fear of Finding Cancer			
High	89 (36.3)	156 (63.7)	0.056
Low	28 (25.9)	80 (74.1)	
Inconvenience			
High	40 (29.9)	94 (70.1)	0.318
Low	77 (35.0)	143 (65.0)	
Concern about Embarrassment			
High	53 (37.6)	88 (62.4)	0.140
Low	64 (30.0)	149 (70.0)	
Difficulty to Get to a Clinic			
High	38 (31.9)	81 (68.1)	0.750
Low	79 (33.6)	156 (66.4)	
Likelihood of Getting Mammogram in the Next 12 Months			
High	91 (37.1)	154 (62.9)	0.014
Low	26 (23.9)	83 (76.1)	
Obtaining Professional Breast Exam			
Every 6 months	56 (36.4)	98 (63.6)	0.017
Every year	49 (32.9)	100 (67.1)	
Every two years or more	10 (33.3)	20 (66.7)	

bivariate analyses are important, they do not reveal the degree to which each covariate is related to the dependent variable because many variables are often interrelated. Thus, multivariate analyses were conducted to assess the predictive power of each independent variable in determining the likelihood of obtaining mammograms. For this purpose, we use linear regression analyses. Thus, controlling for various characteristics, multivariate analyses allowed us to examine in detail the predictors of obtaining screening mammograms and whether higher or lower estimated coefficients have a significant impact on the outcome. Diagnostic tests were performed to assess multicollinearity among the independent variables. In addition, diagnostic tests were performed to evaluate goodness of fit and normality of the dependent variable as required for linear regressions. All analyses were performed using the Statistical Package for Social Science (SPSS version 12.0, 2004) and p values ≤ 0.05 were considered statistically significant.

RESULTS

A random-digit-dialing, community-based survey identified 430 respondents who qualified to participate in the study. Table 1 shows the demographic characteristics of the study sample. The mean age was 51.9 years. Overall, the racial and ethnic breakdown consisted of 38.1% African-American, 44.9% Latina and 17.0% of other racial and ethnic groups. A majority (60.9%) of the sample had a high-school education or less. Nearly half (46.7%) of the sample reported total annual household incomes of <$20,000. Nearly two-thirds (64.4%) of the sample reported having some form of health insurance and the sample was almost evenly split between being married and not married (51.9% vs. 48.1%).

Data analyses revealed that the intervention and comparison group assignees were comparable in reference to all variables measured at baseline, suggesting that our randomization procedure was effective. African Americans comprised 40.6%, Latinas 41.1%, and respondents of other racial and ethnic groups comprised the remaining 18.3% of the intervention group.

One goal of the study was to test the hypothesis that the mean screening mammography utilization rates of the participants assigned to the intervention (36.8%) and control groups (29.0%) were equal. A difference of 7.8% was detected that was found not to be statistically significant; consequently, the null hypothesis was accepted. A small sample size may explain our inability to detect statistically significant differences between the two study groups. Power calculations suggests that a total sample of 1,080 (540 participants in each group) would have been required to detect a statistically significant difference between the means of the two groups with $\alpha=0.05$ and $\beta=0.80$.

Having a screening mammogram during the time interval between baseline and the six-month follow-up assessment was the main outcome variable of interest in this study. This self-reported behavior was obtained by telephone during the six-month follow-up interview. Variables in Table 3 were included in Chi-squared analyses to determine associations between the dependent variable (obtaining screening mammograms at follow-up) and all potential covariates. All continuous predictor variables were dichotomized for bivariate analyses. Groups were divided into roughly equal sizes. Study participants were asked during telephonic recruitment which race/ethnic group described them best. A list of possible responses were read, including: a) African-American, b) Asian/Pacific Islander, c) Caucasian/white, d) Hispanic/Latina (specify), e) Native American, f) other (specify), (g) don't know or h) refused to identify. All study participants provided a self-identification of their racial or ethnic group. For analytical purposes, race and ethnicity are categorized as African-American (38.1%), Hispanic/Latina (44.9%) and other (17.0%). This racial and ethnic distribution is representative of the study area.

Bivariate analyses revealed the following variables to be statistically significant at p$\leq$0.05: doctor recommended having a mammogram, doctor recommendation caused me to get a mammogram, my knowledge of the age to begin having regular mammograms, ever having a mammogram, likelihood of getting a mammogram in the next 12 months and having a professional breast examination.

Multiple logistic regressions were conducted to examine the independent impact of each covariate in determining the likelihood of obtaining mammograms during the intervention period (Table 4). Tests of collinearity were conducted among the variables that were found to have significant associations during the bivariate analyses. These tests found strong associations between professionals' recommendations to get mammograms and "doctors' recommendations caused me to get mammograms". Consequently, professionals' recommendations to get mammograms were deleted from the equation. Four factors emerged as significant predictors of women getting screening mammograms in the multiple logistic regressions analyses. These factors included: 1) age, 2) study group, 3) prior mammograms, and 4) knowledge of the age that a woman should begin getting mammograms on a regular basis.

Younger participants were two times more likely to report having mammograms during the follow-up period than older participants (p$\leq$0.05, OR=2.22, CI

0.98–5.02), and participants in the intervention group were nearly twice as likely to report having mammograms as their counterparts in the comparison group (p≤0.05, OR=1.76, CI 1.06–2.92). Participants who reported having prior mammograms at baseline were 2.5 times more likely to report having mammograms during the follow-up period as those who reported never having mammograms (p≤0.05, OR=2.51, CI 1.39–4.56), and participants who reported that a woman should begin having mammograms regularly before the age of 40 years were slightly over more than half as likely to report having mammograms during the follow-up period as those who reported that a woman should start getting mammograms regularly at the age of ≥40 years (p≤0.05, OR=0.55, CI 0.33–0.92).

DISCUSSION

This study examined the effectiveness of tailored telephone counseling designed to increase screening mammography among 354 women residing in south Los Angeles, a socioeconomically challenged inner-city area. We found that more women (36.8%) reported having screening mammograms in the intervention group than in the control group (29.0%) based on a six-month follow-up interview. Further analysis of the data revealed that in addition to group assignment, age, having prior mammograms and knowledge of age at when to start having screening mammograms increased the statistical power of the model to predict reports of having mammograms during the follow-up assessment.

Various strategies separately or in combination have been implemented to improve mammography utilization in the general population with varying degrees of success. These strategies have included physicians' recommendations,[37] in-person counseling by a nurse,[37,38] chart assessments,[39] individualized risk assessments,[40] mass media campaigns,[3,41,42] and personal letters of invitation from physicians.[37,43-45]

Mixed results have been reported within health maintenance organization (HMO) populations. Whereas sending letters of invitation increased screening mammography by 76% in one study,[46] other studies have shown that birthday cards or invitations have limited impact when compared with a more personalized approach, such as phone counseling.[47,48] Proactive phone counseling has proven effective in boosting adherence to mammography screening guidelines in diverse populations and healthcare settings.[11,49-51] It is a cost-effective strategy for reaching larger segments of the population compared with more costly approaches.[52] Thus, this strategy offers a great potential for promoting screening mammography at least among higher-income women.[53]

The significant associations found for age in this study are consistent with literature on self-report of mammogram screening. In this study, the youngest age group (40–49) was twice as likely to report having a mammogram in the follow-up assessment. One possible explanation could be that younger people have a more favorable attitude toward screenings for breast cancer and/or have a higher perception of the risk of breast cancer. However, Friedman and colleagues'[10] examination of age differences in breast cancer knowledge, attitudes and early detection behaviors in a multiethnic sample of economically disadvantaged women concluded that there was no significant age difference in breast cancer knowledge or perceptions of personal risks of breast cancer. The authors concluded the fact that the three age groups were similar in their perceptions of personal risk of breast cancer suggests that older women may not be accurately assessing their risk and, thus, may be obtaining screening mammography at less-than-optimal levels. In our study, we did not detect a statistically significant difference between age groups and perceptions of risk, knowledge of age to begin

Table 4. Linear multiple logistic regression analysis of having a screening mammograms during the six-month follow-up

Independent Variable	t	OR	95% CI Lower	Upper
Age	0.056	2.22	0.982	5.02
Doctor's recommendation caused me to get mammogram	0.074	0.710	0.378	1.33
Study group	0.028	1.76	1.06	2.92
Prior mammograms	0.002	2.51	1.39	4.56
Fear of finding breast cancer	0.207	1.47	0.807	2.68
Knowledge of age to begin having regular mammograms	0.023	0.552	0.331	0.920
Likelihood of getting a mammogram in the next 12 months	0.263	1.42	0.769	2.61
Having a professional breast examination	0.998	1.00	0.551	1.81

mammograms and perceptions of accuracy of mammograms (data not shown). Taken together, these findings suggest that more studies are needed to investigate the role of age and perceptions of risk in mammography screening.

This study also found that reports of prior mammograms were a strong and independent predictor of having follow-up screening mammograms. One plausible explanation is that once a woman has a mammogram she will continue to practice this health-protective behavior. Further analyses of our data revealed that over 60% of women in the "prior mammogram" category (n=229) reported having more than one mammogram and 26% reported having more than three (data not shown). Whether having positive experiences through repeated mammograms or repeated exposure to healthcare providers are related to having repeated mammograms needs further investigation in women <55 years of age. Rakowski et al.[54] examined the prevalence and correlates of repeat mammography among women aged 55–79 in a large cross-sectional sample of the 2000 National Health Interview Survey. The prevalence estimates were 49% for the 12-month interval and 64.1% for the 24-month interval. Correlates of lower likelihood of repeat mammography for both indicators were: no regular source of care, having public or no health insurance, less than a college education, household income less than $45,000, not being married, current or never smoking, age 65–79 and lower absolute risk of breast cancer (Gail Model score). They found that a substantial percentage of women do not receive repeat mammograms.

Lack of knowledge and information regarding breast cancer screening have often been cited in the literature as barriers to having mammograms.[55,56] Conversely, knowledge of mammography guidelines has been cited as one of the major predictors of regular screening.[57,58] However, in this study, participants who correctly understood the age that a woman should begin regular mammography screening (≥40) were less likely to report having mammograms during the follow-up period. This suggests that knowledge of the mammogram guidelines does not necessarily lead to adhering to those guidelines. These women potentially could be motivated to convert their knowledge into action. Our data revealed that 40–49-year-old women constituted nearly 59% of the sample who had responded correctly to the guideline question. However, over 75% of this group knew they should have a mammogram but have not done so. These findings suggests that healthcare providers should reach out to younger women to encourage them to get mammograms early and repeatedly.

Study Limitation

Several factors should be considered when assessing the effectiveness of this study. First, for financial reasons, we utilized self-reports of screening mammography instead of the more expensive method of medical records verifications. However, previous studies[59,60] have shown that self-reports of health behaviors are generally accurate and that self-reports of screening mammography use are acceptable (about 83% concordance with medical records). Second, a total of three phone calls were made to respondents who completed the study that undoubtedly heightened respondents' awareness of the problem of breast cancer and the need to have mammograms. A 54-item breast cancer questionnaire was administered during the initial community-based random-digit-dialing phone call. During the second call, we asked participants if they had gotten mammograms since our initial call, and the third call was to determine if they had gotten mammograms since the second call. Although methodologically essential to assess the impact of the intervention, it is reasonable to suspect that these phone calls may have had a minimal affect on the results of our study. Randomization, however, seems to have minimized this potential affect.

CONCLUSION

It is encouraging to note that a higher percentage of previously noncompliant participants in our intervention group reported having mammograms at follow-up (36.8% vs. 29.0%). It is also noteworthy that this result was achieved in an urban population that had not had mammograms in the year preceding our inquiry. Further, it should be noted that this result was achieved in a shortened follow-up period of only six months. A longer follow-up period of one or two years, which would have been consistent with current screening mammography recommendations, would have been ideal. Were we to assume that our tailored intervention maintained at least half of its effectiveness over the next six months, then greater than half (55.2%) of the participants in the intervention group would have gotten screening mammograms.

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Information for Hurricane Katrina Volunteer Doctors

Louisiana's Governor Blanco Issues Executive Order Regarding Out-of State Volunteer Physicians ~ Licensure and Liability Issues

Executive order KBB 05-26 Declaration of Public Health Emergency

To suspend out of state licensure for medical professionals and personnel

Section 2 The Louisiana State licensure laws, rules and regulation for medical professional and personnel are hereby suspended for those medical professionals and personnel from other states offering medical services in Louisiana to those needing medical services as a result of this disaster provided that out-of-state medical professional and personnel possess current state medical license in good standing in their respective state of licensure and that they practice in good faith and within the reasonable scope of his or her skills, training and ability.

Section 3 All out-of-state medical professional and personnel offering services to the State of Louisiana by authority of this order shall be covered by LA R.S. 40: 1299, 39 et. seg and shall thus be considered agents of the State of Louisiana for tort liability purposes contingent upon said out-of-state medical professional and personnel possessing current state medical license in good standing in their respective states of licensure and that they practice in good faith and within the responsible scope of his or her skills training or ability.

Section 4 All out-of-state medical professional and personnel offering services to the State of Louisiana by authority of this order shall submit to the state health officer or his designee at the office of public health within the Louisiana Department of Health and Hospitals a copy of their respective license and photo identification.

Section 5 The suspension of these rules, regulations and laws shall extend through Sunday, September 25, 2005.

NMA Members who would like to Volunteer, in the State of Louisiana for the Katrina Medical Relief Effort may contact the following:

- Louisiana Office of Public Health   (225) 763-8533
- Dr. Jean Takanaka   (225) 763-5751, jtakenak@dhh.la.gov
- LSU Pete Maravich Center   (225) 578-0377
- Physician Section   (225) 763-5762, (225) 763-5763

The State of Louisiana recommends that you contact one of the above if you desire to volunteer.

Treatment Facilities

Louisiana Temporary Medical Operations Staging Areas(TMOSA). The TMOSA are located at the LSU Pete Maravich Assembly Center in Baton Rouge, and Nichols State University in Thibodaux, LA. For evacuees from the Greater New Orleans area who need medical care.

Special Needs Shelters(SNS). SNS are set up in Baton Rouge, Monroe, Alexandria, Lake Charles, Lafayette and Thibodaux. To serve patients who do not require acute hospital care but who require oxygen treatment, tube feeding or mental health.

Physicians who volunteer for these shelters will provide triage and medical care services.

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