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Breast Cancer Screening and Related Attitudes among Filipino-American Women¹

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Abstract

This study assessed mammography screening rates and related attitudes and intervention preferences in Filipino-American women, a group that has been neglected in cancer control research. Face-to-face interviews were conducted in English and Tagalog with a convenience sample of 218 Filipino women 50 years and older residing in Los Angeles. Sixty-six % had ever had a screening mammogram, 42% had had one in the past 12 months, and 54% in the past 2 years. These rates are about 20% lower than those found among African-American and white women in the 1994 California Behavioral Risk Factor Survey. Women who had received a doctor's recommendation to obtain a mammogram, women stating that they were very likely to obtain a mammogram if a physician recommended it, and women who felt very comfortable requesting a mammogram from a physician were more likely to have been screened. Women who had friends and relatives who had obtained mammograms, those stating that their friends and relatives would be very supportive of their getting a mammogram, and those who felt that it was very worthwhile to obtain a mammogram were also more likely to have been screened. The following variables were negatively related to the outcome: concern over cost, the attitude that mammograms are only needed in the presence of symptoms, perceived inconvenience of taking the time and difficulties getting to the mammography facility, and embarrassment. Implications for interventions to increase breast cancer screening are discussed.

Introduction

Breast cancer prevention and control research has recently sharpened its focus on Asian-American women, with unexpected results. Data on breast cancer incidence and mortality

for separate Asian-American groups have usually been merged into a single category with "other" ethnicities. Women in this broad grouping, on average, have shown low incidence of breast cancer compared to white and African-American women. In 1996, however, the National Cancer Institute published cancer rates for specific ethnic groups based on national data collected by the Surveillance, Epidemiology and End Results Program (1). These data, and similar statistics published by the California Cancer Registry (2), help dispel the myth that all Asian Americans have low breast cancer incidence rates. National data show that the rates for Asian Americans vary almost 3-fold among specific ethnic populations, ranging from 28.5 per 100,000 in Korean Americans to 82.3 in Japanese Americans. The incidence for Filipinos is 73.1 per 100,000, which is higher than for Hispanics (69.8) but lower than for African Americans (95.4) or Whites (115.7). Breast cancer is the leading cause of cancer death among Filipino women, and it ranks second after lung cancer among other Asian ethnic groups.

Most studies to date have also suggested that immigrant Asians have a very low risk of breast cancer and that prevention efforts may be needed only in future generations (3–6). However, recent evidence from a case control study among Chinese, Japanese, and Filipinos residing in California suggests that, within the migrating generation, breast cancer can double after a decade of United States residence (7). In migrants from rural Asian communities, risk seemed to triple over two decades. In addition, the study also demonstrated that rates for United States-born Asian Americans, whose grandparents were all born in Asia, were comparable to rates for United States Whites, whereas rates among Asian Americans born in the United States with at least one grandparent also born in the United States exceeded rates of comparable United States Whites. This study underscores the need to target Asian women, including recent immigrants, for breast cancer prevention and control efforts, including mammography screening.

The few national studies that have included small numbers of Asian American women show that even among more acculturated, English-speaking women, cancer screening rates are lower than for those of any other ethnic group. For example, National Health Interview Survey data (1987) show that white and black women were more than twice as likely to have ever had a mammogram, compared to women in the Asian/Other category, even after controlling for various demographic characteristics including education and income (8). Data from the Behavioral Risk Factor Survey conducted in California in 1994 show that 61% of Asian women had received a mammogram in the last 2 years, compared to 69% of Hispanic and 76% of African-American and white women (2). Studies targeting specific Asian-American groups also show low levels of cancer knowledge and screening rates in Vietnamese (9–11) and Chinese (12) women. Thus, Asian women fall significantly short of

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the National Cancer Institute's Year 2000 goal of regularly screening 80% of age-eligible women for breast cancer.

The purpose of this study was to assess breast cancer screening rates among Filipino-American women for whom breast cancer ranks as the number one cause of cancer mortality. Another purpose of this research was to identify the knowledge, attitudes, and barriers related to screening that may assist in the development of effective intervention strategies.

Subjects and Methods

Using information gained from semistructured interviews with nine key informants and three focus group discussions with Filipino-American women, a questionnaire was developed in English and Tagalog to measure demographic characteristics, including acculturation, mammography utilization, related knowledge and attitudes, and intervention preferences. Many of the items were taken from our prior studies (13–15) and from the National Health Interview Survey. The Adherence Model (16, 17) was used to construct the questionnaire. This comprehensive theoretical framework incorporates components of the Health Belief Model (18), the Theory of Reasoned Action/Planned Behavior (19, 20), and the Precede Model (21) to understand adherence to health recommendations.

Specifically, the questionnaire addressed the following constructs derived from the Adherence model: knowledge; perceived susceptibility to breast cancer; perceived severity of breast cancer; perceived efficacy of screening and early detection; and perceived barriers such as fear of finding cancer, radiation exposure, or cost. In addition, two items addressed normative beliefs: number of friends/relatives who have mammograms; and social support for getting a mammogram. Finally, measures of past breast cancer screening were included.

Our prior research has shown that in the general population, the factors in the Adherence model are consistent predictors of adherence to health recommendations. In the area of breast cancer, correlational studies (13) as well as prospective studies (14) have demonstrated the predictive power of these variables.

All attitudinal constructs were assessed using single items. While recognizing the limitations of using single items to measure complex constructs, we balanced these concerns against the need to minimize respondent burden.

Acculturation was measured using a modified scale that was originally developed for Southeast Asians (22). This scale contains items measuring language proficiency (*i.e.*, speaking, reading, and writing in both English and Tagalog); language most used with friends, neighbors, and at family gatherings; and type of close friends and neighbors (more from respondents' culture of origin or "American"). Applying the method used by the developers of this scale (22), respondents were classified as traditional (high Tagalog but low English proficiency and usage and social contacts mainly with Filipino-Americans), bicultural (high Tagalog and high English proficiency and usage and social contacts with both Filipino and non-Filipino Americans), or assimilated (high English but low Tagalog proficiency and usage and social contact mainly with non-Filipino Americans).

Two Filipino-American, English-Tagalog bilingual women, one with an undergraduate degree in clinical psychology and one with a degree in registered nursing near completion, received 8 h of interview training in English, including instructions on probing, role play, and practice interviews, with staff members and seven Filipino-American older women who were not included in the study. To ensure consistency in interviewing, interviewers met with project staff for debriefing

Table 1 Demographic characteristics of Filipino-American women (N = 218)

	Sample characteristics (%)
Age	
50–59	27.1
60–69	42.9
70	30.0
Marital status	
Married	56.9
Not married	43.1
Education	
<8th grade	17.9
8–11th grade	5.5
High school	14.2
Trade or tech school	2.3
1–3 years college	10.6
College graduate	35.8
Graduate work/degree	13.8
Income	
<10,000	37.3
10,000–24,999	22.9
25,000–39,999	16.9
40,000–54,999	12.4
>55,000	10.4
Health insurance	
Yes	74.5
No	25.5
Language of interview	
English	49.5
Tagalog	50.5
Residency in the United States	
≤4 years	18.8
5–9 years	23.6
10–14 years	21.6
15–19 years	18.3
≥20 years	17.8
Acculturation	
Traditional	43.1
Bicultural/assimilated	56.9

sessions weekly for the first 4 weeks and twice a month for the remaining 5 months. Interviewers conducted face-to-face interviews with a convenience sample of 218 Filipino-American women 50 years and older recruited through a community network approach. The majority of women were clients of a community-based social service organization or members of a Filipino church congregation. Other women were contacted through women who had completed the interview. Interviews lasting an average of 50 min were conducted at subjects' homes from October 1995 to March 1996, and participants were reimbursed \$10.00. One-half of the interviews were conducted in Tagalog. Of 228 women approached for the interview, 10 refused to participate, yielding a response rate of 96% (218 of 228).

Results

Sample Characteristics. The average age of respondents was 65 years (range, 50–83 years.) All 218 women were born in the Philippines. The average age at time of immigration to the United States was 53 years, and duration of residency in the United States ranged from a few months to over 20 years. Additional demographic factors are presented in Table 1. Sixty % of respondents had some college education. However, the level of education was much lower ($P < 0.0001$) among

Table 2 Self-reports of breast cancer screening (N = 218)

	%	N
Ever heard of a mammogram	93	203/218
Ever had a mammogram	66	144/218
When was last mammogram		
In past 12 months	65	94/144
1–2 years ago	19	27/144
2–5 years ago	11	16/144
>5 years ago	5	7/144
Reason for last mammogram		
Screening	98	141/144
Diagnostic	2	3/144
Total number of screening mammograms received		
1	31	44/144
2	26	38/144
3	14	20/144
≥4	26	37/144
Usually obtains screening mammograms ^a		
Every year	64	61/95
Every 2 years	23	22/95
Every 3–5 years	7	7/95
Less frequently	4	4/95
Obtained screening mammogram according to guidelines	42	92/218
Has a professional breast exam		
Every year	34	73/218
Every 2 years	12	26/218
Every 3–5 years	5	10/218
Only once	13	28/218
Never	35	76/218
Does breast self-exams		
More than once a week	25	54/218
Once a week	19	41/218
Once a month	25	54/218
2–3 times a year	12	27/218
Never	17	38/218

^a Only asked of women who had more than one mammogram.

women interviewed in Tagalog (43% less than high school, 18% high school, and 39% some college) than among women interviewed in English (4% less than high school, 15% high school, and 81% some college). Seventy-four % of the women stated that they had health insurance, mostly Medicaid and Medicare, and more than one-third reported a yearly household income of less than \$10,000. The majority of women lived with their husband and/or children (43%) or members of their extended family (37%), and 14% lived alone. Women spent most of their time working outside the home (37%), reading or watching television (37%), taking care of family members (13%), or performing volunteer work (9%). Based on the above-mentioned acculturation scale (22), 43% of respondents were classified as “traditional,” and the remaining 57% were classified as “bicultural/assimilated.”

Screening Rates. As Table 2 indicates, almost all women (93%) had heard of a mammogram, and 66% had ever had a mammogram. Of those who had ever had a mammogram, 65% had their most recent one during the past 12 months, and another 19% had it 1–2 years ago. All except three women had their most recent mammogram for screening purposes. Thus, 42% of the total sample had had a screening mammogram in the past 12 months, and 54% in the past 2 years. Thirty-one % of women who had been screened had received only one mammogram, 26% had received two, 14% had received three, and 26% had received four or more mammograms. Most of the

women receiving more than one mammogram ($n = 95$) reported obtaining mammograms every year (64%) or every 2 years (23%). Mammography screening rates were similar for women interviewed in English and in Tagalog. Thirty-four % of the women reported having professional breast exams yearly, 12% reported having these exams every 2 years, and 35% never had one. Women who were interviewed in English were more likely to have received breast exams than women interviewed in Tagalog ($P < 0.04$). Monthly or more frequent breast self-exams were reported by 69% of the women, with no significant differences by interview language.

Knowledge, Attitudes, and Beliefs Regarding Breast Cancer Screening. Table 3 contains results pertaining to the knowledge, attitudes, beliefs, and barriers related to breast cancer and mammography and the bivariate relationships between these variables and having ever had a screening mammogram. Almost two-thirds of the sample (65%) knew the American Cancer Society screening guidelines (once a year), and 57% had received a recommendation from their physician to obtain a mammogram. Fifty-eight % of women stated they would be very likely to obtain a mammogram if their physician recommended the procedure. As a measure of perceived severity of breast cancer, women were questioned about a woman's chance of being alive 5 years after a breast cancer diagnosis. Although 24% of respondents thought their chance of 5-year survival was very poor (= high severity), 29% expected a moderate chance, and 47% a very good chance for survival. Perceived susceptibility to breast cancer was low in the majority of respondents (90%), with only 10% of the sample reporting moderately high susceptibility. Thirty-one % of women thought breast cancer is usually caused by factors beyond human control, such as spiritual forces, fate, or predestination; thus, they felt that they had low control over getting the disease. Twenty % of the women felt a high degree of control over getting breast cancer, and 49% felt moderate control. Belief in the efficacy of early detection and mammography was very high, with 80% of the sample reporting belief in a very good chance of cure if breast cancer was found early, and 97% agreeing with the statement that a mammogram can find breast cancer in its early stages. More than one-half of respondents (57%) reported few friends or relatives having had mammograms, 25% reported none, and the remaining 17% reported that at least one-half of their friends had had mammograms, indicating group norms not supportive of breast cancer screening for the majority of respondents. However, most respondents felt that their friends or relatives would be very supportive (59%) or supportive (41%) of their having a mammogram. In our sample, concern about a mammogram finding breast cancer was high, with 67% of women reporting that they were very or somewhat concerned about this possibility. In addition, large proportions of women had high or moderate concerns about radiation exposure (63%), pain (59%), cost (43%), inconvenience of taking time (46%), and difficulties reaching the mammography facility (40%). Twenty-five % of the sample agreed with the statement that a mammogram is only needed in the presence of symptoms, and 18% were embarrassed about getting a mammogram. The majority of women felt very or somewhat comfortable requesting a mammogram from a physician. Overall, 74% of respondents felt obtaining a mammogram was very worthwhile, and 26% felt it was not very worthwhile.

It should be noted that we also compared knowledge, attitudes, and beliefs of women classified as “traditional” to those classified as “bicultural/assimilated” (data not shown), and only two variables were significantly different between the

Table 3 Sample characteristics and bivariate relationships between variables and receipt of screening mammogram among Filipino-American women (N = 218)

Variable	Sample characteristics %	% Screened	Bivariate	
			χ^2	P
Knowledge of screening guidelines			1.4	0.244
Yes	64.7	71.3		
No	35.3	63.5		
MD ^a recommended mammogram			85.6	0.0001
Yes	56.7	93.5		
No	43.3	33.3		
Likelihood of obtaining mammogram if MD recommended			13.1	0.001
High	58.0	79.2		
Moderate	20.3	59.5		
Low	21.7	52.4		
Perceived severity of breast cancer			0.8	0.662
High	23.7	71.0		
Moderate	29.0	64.4		
Low	47.3	70.8		
Perceived susceptibility			1.9	0.167
Moderate	9.8	55.0		
Low	90.2	70.1		
Perceived control over getting breast cancer			5.5	0.065
High	20.1	70.7		
Moderate	48.6	74.0		
Low	31.3	56.9		
Perceived efficacy of early detection			2.3	0.315
High	80.2	70.7		
Moderate	15.2	63.6		
Low	4.6	50.0		
Perceived efficacy of mammography			1.5	0.226
High	96.6	69.9		
Low	3.4	53.8		
No. of friends/relatives who had mammograms (group norms)			23.0	0.00001
At least one-half	17.2	88.9		
Few	56.5	71.3		
None	26.3	42.0		
Social support for getting mammogram			6.5	0.01
A lot of support	58.4	76.2		
Some support	41.6	59.5		
Concern about mammogram finding cancer			2.9	0.230
High	52.1	70.3		
Moderate	15.2	56.3		
Low	32.7	72.7		
Concern about radiation			2.7	0.258
High	37.0	63.2		
Moderate	25.9	67.3		
Low	37.0	75.3		
Concern that mammogram may be painful			2.5	0.292
High	39.1	63.4		
Moderate	20.0	69.0		
Low	40.9	74.7		
Concern about cost			10.4	0.005
High	33.5	56.5		
Moderate	9.6	57.1		
Low	56.9	77.5		
Inconvenience of taking time out for mammogram			11.7	0.003
Very	19.7	50.0		
Somewhat	26.1	63.5		
Not at all	54.1	77.6		
Difficulty of going to the facility for mammogram			32.4	0.0001
Very	14.3	30.0		
Somewhat	25.3	60.0		
Not at all	60.4	81.4		
Need mammogram only when symptom present			13.7	0.001
Yes	24.8	48.1		
No	72.0	75.7		
Embarrassment about getting a mammogram			5.3	0.02
Yes	18.0	52.8		
No	82.0	72.3		

^a MD, medical doctor.

Table 3 Continued

Variable	Sample Characteristics %	% Screened	Bivariate	
			χ^2	P
How comfortable requesting a mammogram			20.5	0.0001
Very	63.6	79.5		
Somewhat	24.8	53.8		
Not at all	11.7	40.9		
How worthwhile is mammogram			11.2	0.0008
Very	73.6	75.5		
Not very	26.4	50.9		
Health Insurance			27.1	0.0001
Yes	74.5	78.8		
No	25.5	40.4		
Residency in United States			31.1	0.0001
≤4 years	18.8	38.5		
5–9 years	23.6	59.2		
10–14 years	21.6	82.2		
15–19 years	18.3	81.6		
≥20 years	17.8	86.5		
Acculturation			3.3	0.07
Traditional	43.1	62.2		
Bicultural/assimilated	56.9	73.9		

two groups; traditional Filipino-American women were more likely to believe that a mammogram is only needed in the presence of symptoms (43% versus 8%, $P < 0.001$) and less embarrassed when getting a mammogram (12% versus 24%, $P < 0.03$) as compared to their bicultural or assimilated peers. Knowledge of screening guidelines was not significantly different between these two groups of women.

Bivariate analyses were performed to determine whether any of the variables in Table 3 distinguished between women who had obtained at least one screening mammogram and women who had never been screened. Our analyses focus on correlates of “ever had a screening mammogram” rather than “had a recent (within the past 1–2 years) screening mammogram” because the vast majority (82%) of women who ever had a mammogram had their most recent test within the past 2 years. Women who had received a doctor’s recommendation to obtain a mammogram, women stating that they were very likely to obtain a mammogram if a physician recommended it, and women who felt very comfortable requesting a mammogram from a physician were more likely to have been screened. Women with friends and relatives who had obtained mammograms, those with friends and relatives who would be very supportive of their having a mammogram, and women declaring it very worthwhile to obtain a mammogram were also more likely to have been screened. The following variables were negatively related to the outcome: concern over cost; the attitude that mammograms are only needed in the presence of symptoms; perceived inconvenience of taking time and difficulties of reaching the mammography facility; and embarrassment. Knowledge, perceived severity, perceived susceptibility, perceived control over getting breast cancer, and perceived efficacy of early detection and mammography were not related to receipt of screening mammography. In addition, concerns about the possibility that the mammogram may find cancer, that the mammogram may be painful, and concerns about radiation exposure were not related to receipt of the screening procedure. The only demographic variables related to screening were having health insurance and longer duration of United States residency. Also, respondents classified as “traditional” were slightly less likely to have ever had a mammogram than respondents classified as “bicultural/assimilated.”

To examine multivariately the predictors of having obtained a screening mammogram, we conducted a standard logistic regression analysis using the 15 predictor variables listed in Table 3 that were bivariately significant at $P < 0.1$. Duration of residency in the United States was entered as a continuous variable. All other variables were treated as categorical. Table 4 lists the variables emerging as significant in the standard logistic regression. The most powerful predictor of ever having had a mammogram was a physician’s recommendation. The odds of ever having had a mammogram were 32 times greater for women who received a physician’s recommendation for the test than for women who had not received such a recommendation. However, the very wide confidence interval around the odds ratio for this variable warrants caution in interpreting the effect size. Women stating that they were very comfortable requesting a mammogram from a physician were much more likely to have ever had a mammogram than those who reported being not at all comfortable. Women who found it very difficult to get to the mammography facility were less likely to have ever been screened than women who did not find it difficult, and women who believed a mammogram is only needed in the presence of symptoms were less likely to have ever been screened than women who did not state this belief. The duration of United States residency emerged as borderline significant, with women who had been in the United States longer being more likely to have ever had a mammogram. A stepwise logistic regression and a standard logistic regression excluding demographics yielded the same five significant independent predictors, indicating that our data are robust.

Intervention Preferences. In preparation for future intervention studies, women were asked for a list of things that might help or influence them to obtain a mammogram. About 80% of women stated that hearing a talk about breast cancer and mammography at their church, senior center, or community center, receiving a brochure in Tagalog, or discussing breast health issues in a small group of Filipino women would be very helpful for them. Seventy % thought it would be very helpful to have a toll-free telephone line where they could ask questions and receive information in Tagalog. About 60% said it would be very important for them to receive a mammogram from a

Table 4 Logistic regression analysis predicting likelihood of ever having obtained a screening mammogram ($N = 208$)

	Odds Ratio	Confidence interval
Received MD ^a recommendation		
Yes	32.50	(8.86–119.28) ^b
No	1.00 ^c	
Comfortable requesting a mammogram		
Very	7.84	(1.26–48.72) ^d
Somewhat	2.65	(0.41–17.11)
Not at all	1.00 ^c	
Difficulty of going to the facility for mammogram		
Very	0.22	(0.05–0.97) ^d
Somewhat	0.97	(0.27–3.41)
Not at all	1.00 ^c	
Need mammogram only when symptoms are present		
Yes	0.24	(0.07–0.85) ^d
No	1.00 ^c	
Duration of residency in the United States	1.09	(0.10–1.18) ^e

^a MD, medical doctor.

^b $P < 0.0001$.

^c Referent category.

^d $P < 0.05$.

^e $P = 0.06$.

Filipino health care professional or to have someone available who speaks Tagalog when receiving a mammogram. For 56%, it was very important to have a companion when getting a mammogram, and for 47%, it was very important to be able to get a mammogram on a weekend. Compared to women interviewed in English, women interviewed in Tagalog were significantly more likely to report that it was very important for them to receive information in Tagalog and to have a Tagalog interpreter available and be accompanied by a companion when receiving a mammogram. Finally, respondents were asked about the personal and professional characteristics of the person with whom they would be most comfortable discussing such private issues as breast health. The majority of respondents preferred a female (81%) of Filipino background (63%). A health professional was preferred over a lay health educator (61% versus 12%), but 27% stated that this distinction did not matter to them. More than one-half (55%) stated that they would like to discuss mammography and breast health issues in Tagalog, 18% in English, and 27% had no language preference. The most trusted sources of information regarding mammography and breast health were health care professionals (58%) and friends and family members (19%).

Discussion

Screening Rates. Screening rates in our sample were about 20% lower than those found in the 1994 California Behavioral Risk Factor Survey among white and African-American women (2). Despite the fact that we interviewed a convenience sample, the proportion (54%) of Filipino women having a screening mammogram during the past 2 years was very similar to the 61% found by the California Behavioral Risk Factor Survey among English-speaking Asian women. The slightly lower rates in our study may be attributable to the inclusion of non-English speakers, whose screening rate is generally lower than for more acculturated women. Comparing our results with those of studies involving other Asian subgroups in California (11, 23) suggests that screening rates for Filipino women may be higher than for either Vietnamese or Chinese women. However, considering the 6 years time difference between the con-

duct of the other studies in 1989–1991 and our new data, these differences could be attributed to a secular trend in mammography screening noted in the general population (24) and likely occurring in Asian populations as well. Another plausible explanation for the elevated screening rate in our sample may be age criteria. Our Filipino sample was limited to women 50 years and older, whereas the Chinese and Vietnamese sample included ages between 40 and 50 when the likelihood of screening may have been less.

Variables Related to Mammography Screening. Consistent with the results of other studies among white, Hispanic, and African-American women (13, 25), health insurance was significantly associated with mammography screening behavior. The only other demographic variable significantly related to receipt of a screening test was duration of United States residency, which has also been associated with screening among Vietnamese women (10). Although we did not specifically ask women if they had obtained any mammograms in the Philippines, our findings suggest that most women obtained their mammograms after they migrated to the United States.

As has been shown in non-Asian women (13, 26, 27), a physician's recommendation to obtain a mammogram may be the most important influence for obtaining a mammogram among Filipino-American women; almost all women who had received a physician's recommendation received screening, compared to only one-third of women who had not received such a recommendation. On the other hand, only 57% of the women had received a screening recommendation from a physician, only 64% of women felt very comfortable requesting a mammogram, and a substantial minority (12%) felt not at all comfortable requesting a mammogram. These findings, coupled with the fact that the majority of the women preferred to receive a mammogram from a Filipino health care provider who they regard as the most credible source of health information, underscore the importance of involving Filipino health care providers in intervention programs.

It has been suggested that the strong Roman Catholic influence causes many Filipinos to regard illness and suffering as unavoidable in certain circumstances ("it is in God's hands") and results in a fatalistic attitude toward prevention. In addition, group loyalty is an important trait; thus, family involvement in decisions about health care is essential (28). Our data appear to support these notions. Thirty-one % of Filipino-American women in our sample expressed the belief that breast cancer is usually caused by things beyond human control, such as spiritual forces, fate, or predestination; therefore, they felt that they had low control over getting the disease. These women were less likely to have had a mammogram than women believing that breast cancer is sometimes or never caused by things beyond human control. Group norms also appear to play an important role, because women with many friends and relatives who had mammograms were almost twice as likely to have had a mammogram than women without such friends and relatives. It should also be noted that the vast majority of Filipino-American women in our sample believed that a mammogram can find breast cancer in its early stages when it is more treatable. This suggests that, at least with regard to breast cancer early detection, these women believe in the benefits of Westernized medicine.

Overall, barriers to breast cancer screening appear to be similar to those found in other ethnic groups (13, 26, 27, 29). A barrier that has not been reported in the literature, *i.e.*, being uncomfortable requesting a mammogram from a physician, was important for 12% of our Filipino-American sample. Women

stating they were not at all comfortable requesting the procedure were far less likely to be screened than women stating that they were very comfortable. Embarrassment about getting a mammogram, mentioned by key informants as a potential obstacle to obtaining a mammogram, was of great concern only to a small number of women and was negatively related to receipt of a mammogram.

Implications for Interventions to Increase Mammography Screening. Intervention plans for increasing breast cancer screening among Filipino-American women, should take into consideration all of the attitudes and barriers discussed above, as well as the intervention preferences of Filipino-American women. For example, emphasis should be placed on the need for obtaining regular screening mammograms even when no symptoms are present. Inviting several Filipino-American women to a group session to discuss breast cancer screening may provide positive group norms for some women, by meeting other women who have been screened who can provide support for a woman's screening decision. Having a female Filipino health professional, who would answer questions and encourage mammography screening, lead the group discussion can take advantage of the credibility and authority that Filipino women invest in health professionals and the greater comfort they feel in confronting private issues with women of similar ethnicity. Barriers such as concern about cost, inconvenience, and transportation to the facility should be addressed. Practicing some strategies and role playing with Filipino-American and other Asian women on how to request a mammogram from a physician may also be useful.

Limitations of the Study. Because this survey was conducted with a convenience sample of Filipino-American women residing in Los Angeles County, our findings may not represent Filipino-American women in general. The main goal of this study was to begin to understand factors that impact breast cancer screening among Filipino-American women and to investigate potential intervention strategies to improve screening rates.

As with many survey studies, these data are based on self-reports for which we have no independent validation. Several studies in the current literature, including studies targeting low-income non-white populations, show good agreement (66–94%) between self-reports and other independent measures of mammography (30–34). However, these results have not been validated in Filipino-American women.

Although the results of this study indicate many attitudinal variables related to mammography behavior, due to the cross-sectional study design used, it is unclear whether attitudes influence behavior or whether, in fact, receipt of a mammogram influences one's attitudes. Only prospective studies can distinguish the temporal relationships.

In summary, this study provides information about knowledge, attitudes, and behaviors regarding breast cancer screening in Filipino-American women who have not been included in breast cancer control research. From a methodological perspective, this study demonstrates the importance of key informant interviews and focus group discussions prior to questionnaire development. Many of the opinions voiced by key informants and through focus group discussions have been confirmed in our survey and may have been missed without this qualitative phase of the study. From a cancer control perspective, the survey revealed lower screening rates, especially among Filipino-American women with lower levels of education, than for other ethnic groups in California. Both concrete (*e.g.*, cost and time) and attitudinal (*e.g.*, fear of finding breast cancer, only

need mammogram if symptoms are present) barriers influenced screening. Overall, barriers to mammography screening were similar to those found in other ethnic groups. Our results suggest the following strategies to increase breast cancer screening among Filipino-American women: provide information in Tagalog at local centers and in a take-home brochure; include children or other relatives in intervention programs; provide mammography screening on weekends; and include Filipino health professionals in intervention efforts.

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