

The Effectiveness in Utilizing Chinese Media to Promote Breast Health Among Chinese Women

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To increase the awareness and practice of breast health guidelines, a media-based education campaign on breast health was launched among immigrant Chinese community in San Francisco. The media campaign included airing two public service announcements (PSAs) on Chinese television and radio stations and publishing the same message in Chinese newspapers during 2000. Seven-hundred-ten face-to-face interviews were conducted with women who were recruited from various settings in the city of San Francisco to evaluate the impact of the campaign. Survey participants were asked to describe the content of the PSAs. Having viewed the PSA was significantly associated with the ability to identify all four guidelines (OR = 1.96; 95% CI: 1.35–2.85), knowing how to perform breast self-exam (BSE; OR = 2.25; 95% CI: 1.53–3.29), having performed BSE within the past month (OR = 3.12; 95% CI: 2.05–4.74), and having a clinical breast exam (CBE; OR = 2.98; 95% CI: 1.82–4.90) and mammogram (MAM; OR = 1.97; 95% CI: 1.16–3.36) in the past year. The study findings support that a media campaign utilizing PSAs is effective in improving knowledge of breast health guidelines, teaching Chinese women how to (BSEs), and increasing breast health practices.

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According to the U.S. Census 2000, Chinese are the largest Asian group in the United States, constituting 23.8% of the nation's total Asian American population. San Francisco, the thirteenth largest city in the United States, ranks fourth in the number of Asian Americans, where 152,620 Chinese account for 19.6% of San Francisco's total population (United States Census Bureau, 2000). Asian American women comprise the first American population to experience cancer as the leading cause of death since 1980 (Asian American Network for Cancer Awareness, Research and Training [AANCART], 2005; Chen & Koh, 1997). Among all cancer types breast cancer is the second leading cause of cancer deaths and has the highest incidence of all cancers among Chinese women in the United States (American Cancer Society [ACS], 2005b; Ries, Miller, & Hartman, 1991). The national SEER data from 1988–1992 showed that the breast cancer rate among Chinese women was 55.0 per 100,000 (Miller, Kolonel, & Bernstein, 1996). The breast cancer rate from 1992 to 1996 among Chinese women in the San Francisco Bay Area was 55 women per 100,000, the same as the previous national rate (Glanz, 2003).

Although they have a lower prevalence rate when compared with other ethnic groups such as Caucasian and African American women, Asian American women have much higher breast cancer mortality rate due to late-stage diagnosis. Early detection and treatment is the key in reducing mortality and improving survival from breast cancer (ACS, 2005a). Breast cancer survival has been reported to be closely related to stage at diagnosis: in the United States, the 5-year survival rate is 97.5% for women diagnosed with in situ breast cancer, 80.4% for women diagnosed with regional cancer, and only 25.5% for women diagnosed with distant metastases (ACS, 2005b). To date, routine MAM screening is the best available method in detecting breast cancer in its early stages and was shown to decrease mortality by 38% among women aged 50–64 years old (ACS, 2005a; Frisell, Lidbrink, Hellstrom, & Rutqvist, 1997). Studies indicated that among non-Hispanic White women, there has been an increase in MAM screening, which in part contributed to a decrease in breast cancer mortality. However, comparable shifts have not been seen in minority women (Brownstein, Cheal, Ackermann, Bassford, & Campos-Outcalt, 1992; Hoare, 1996; Sadler et al., 2001). In fact, Asian American women have the second lowest MAM screening rate among all ethnic groups in the United States (American Cancer Society, 2004). A study by Liang and Colleagues (2004) indicated that 68% of Chinese Women aged 50 and older in the San Francisco area reported never having had a MAM. Moreover, based on California Health Interview Survey 2001, it was found that 64.6% of the Chinese women had a MAM in the past 2 years compared with 75.5% in all racial/ethnic groups (Ponce, Gatchell, & Brown, 2003).

Low English Health Literacy in Chinese Immigrant Population

Out of nearly 2.86 million Chinese living in the United States, 70.8% were foreign born (Reeves & Bennett, 2000). In order to improve the early screening rate in Asian American women it is important to promote linguistically appropriate breast health education focusing on breast cancer screening such as MAM, CBE, as well as BSE. Ro (2002) reported the lack of linguistically and culturally appropriate services as a major barrier to care for Asian American Pacific Islander women. According to Yu and Colleagues (2003), after adjusting for other confounding factors, ability to speak English was one of the strongest predictors of mammography utilization in the past 2 years among the Chinese and Korean study participants. In another study,

MAM screening rates were significantly lower for non-English-speaking Chinese women (32%) and Latinas (56%), and maintenance MAM screening was 7% for non-English-speaking Chinese women compared with 53% for Blacks (Hiatt et al., 2001). The U.S. Census 2000 revealed that as many as 49.6% of Chinese spoke English less than “very well” at home compared with 8.1% in the national total population (Reeves & Bennett, 2000).

Efficacy of Public Health Media Campaigns

Breast cancer screening based on the ACS guidelines plays a pivotal role in reducing mortality related to breast cancer (Brownstein et al., 1992). The ACS breast health guidelines in 2000 follow: women 20 years and older perform BSE monthly, women aged 20–30 receive CBE every 3 years, women 40 years and older receive every year, and women over 40 years old receive a MAM every year (ACS, 2001). (Note: Beginning in 2004, the ACS stopped including monthly BSE as one of the screening guidelines.) Research has demonstrated that use of media in promotion of breast health guidelines increased awareness of cancer and promoted the importance of early detection and treatment among the English-speaking population (Brownstein et al., 1992; Mayer et al., 1992).

A health education tool, such as a PSA, using the mainstream media demonstrated positive results in awareness. A study found that women’s intentions to obtain a MAM increased significantly after a television media campaign (Mayer et al., 1992). The mass media works well when conveying simple messages, such as “Women over 40 need regular mammograms” (Rimer, 2000). A study by Ramirez and Colleagues (1998) revealed that the mass media is effective in providing emotional appeal in cancer communications and can be adapted to the needs of specific population groups. In addition, numerous studies have shown credible associations between changes in behavior and exposure to the public health message conveyed through mass media (Agha, 2003; Hornik, 2002). It is unclear, however, if ethnic minorities could fully benefit from a breast health media campaign conducted in English due to language and cultural barriers (Richardson et al., 1987; Yu et al., 2003). Research showed that women who did not speak English well were less likely to be aware of cancer signs and symptoms, risk factors, and screening guidelines. Having knowledge of breast screening guidelines and detection methods are important predictors for actually taking initiative in getting screened (Suarez, Roche, Nichols, & Simpson, 1997). A study led by Jenkins and Colleagues (1999) showed that a media campaign in the Vietnamese language effectively increased Vietnamese women’s knowledge, intentions, and behaviors toward early breast cancer detection.

Researchers have indicated that culturally sensitive media-led intervention was an appropriate approach toward early detection of cancer (Jenkins et al., 1999). Although there is currently no published study on the effectiveness of a media-based breast health education program that targets immigrant Chinese, a study by Ferketich and Colleagues (2004) showed that using Chinese media was effective in educating Chinese Americans on the topic of second-hand smoke. Eighty-seven percent of the survey participants reported that they obtained health-related information from Chinese-language newspapers. Chinese-language radio programs also were included as one of the popular sources of health information. In addition, the respondents indicated that the Chinese media are a trusted source of information (Ferketich et al., 2004). Due to the lack of information regarding

the efficacy of media campaigns in breast health education, we designed a study using a community participatory approach to evaluate the effectiveness of a media-based education campaign on breast health among immigrant Chinese women.

We developed five hypotheses:

- (1) Viewers of the media campaign will be more knowledgeable of breast health guidelines than will nonviewers.
- (2) More viewers than nonviewers will know how to perform BSE.
- (3) Viewers will be more likely to report performing BSE within the past month than will nonviewers.
- (4) Viewers will be more likely to report having a CBE within the past year than will nonviewers.
- (5) Viewers will be more likely to report having had a MAM in the past year than will nonviewers.

Methods

Study Design

The media campaign included airing two PSAs on breast health practices during 2000 for 6 months. These two PSAs were developed in both Cantonese and Mandarin. One PSA focused on the ACS breast health guidelines and the other PSA focused on BSE techniques. The messages of both PSAs were promoted through major Chinese media during year 2000 for 6 months prior to the survey. The Chinese media channels included two major Chinese television stations in the Bay Area, one Chinese radio station, and two major Chinese newspapers.

The intention of using multimedia as a health education intervention is to ensure that such intervention will reach a majority of the low literacy and limited English-speaking Chinese women living in the Bay Area. The television PSA was 30 seconds in length and depicts three generations of women at a birthday party. The rationale for the storyboard is that the Chinese community equates the presence of three generations to longevity and family harmony. The PSA suggested that in order to enjoy longevity it is important practice BSE for early cancer detection. These PSAs were aired from May through October 2000 for about 6 months and were shown throughout the day. The 30-second PSA was aired a total of 520 times on three major Chinese television stations. Airtime was both donated by the television stations and purchased.

The radio PSA was a 30-second announcement using ACS breast health guidelines. The radio audience was approximately 130,000, and the PSA was aired 246 times. The Chinese newspaper PSA was a one-half-page illustration of proper techniques for BSE, including breast health guidelines. The advertisement was published twice a week, and the readership of the two newspapers during the 6-month advertising period was about 175,000.

Sample

After promoting the PSAs for 6 months, a survey was developed and administered to a convenience community sample. The study was approved by the institutional review board at the Chinese Hospital prior to the administration of the survey.

A total of 945 women were recruited from various settings in the city of San Francisco where a large number of Chinese immigrants congregate. It includes a daycare center, garment factories, churches, grocery stores, English as Second Language classes, and the streets of Chinatown. Out of the number invited, 235 refused and 710 face-to-face interviews were conducted from December 4, 2000, to January 20, 2001. Following the interview, each participant received a copy of a bilingual booklet, "What Every Woman Should Know: Breast Health Guidelines," and a coin purse imprinted with the breast health guidelines in Chinese. The interviews were conducted in English, Cantonese, or Mandarin according to the participant's choice.

Measures

Classification of PSA's Viewers and Nonviewers

Survey participants were asked to describe the content of the PSAs. Viewers were defined as those who could either (1) recall at least one element of the television PSA such as the three generations of women celebrating a birthday, (2) recall at least one of the messages they heard through the Chinese radio stations regarding the ACS breast health guidelines, or (3) recall the wordings they read describing the PSA in the Chinese newspapers. Nonviewers were defined as those who did not recall any elements of the PSAs.

Knowledge of Breast Health Guidelines

Participants were given six statements including four correct and two incorrect guidelines. They were asked to identify whether a statement was included in the recommendation for early detection of breast cancer. Among viewer participants, they were also asked whether they knew the guidelines prior to the PSA.

Knowledge of How to Perform Breast Self-exam (BSE)

Participants were asked if they knew how to perform BSE. The respond choices were "yes," "no," and "somewhat." Among viewer participants, they were also asked whether they knew how to perform BSE prior to the PSA.

Breast Exams Practices

All participants were asked the last time they had performed a BSE, had a CBE, and had a MAM. Base on the responses, we found that the outcome variables of interest are the following: (1) had BSE within the past month; (2) had CBE within the past year; and (3) had a MAM within the past year. These were used as a proxy of positive breast health practices.

Breast Health Practices Before and After PSA

The following questions were only asked of viewers. For each of the breast health practices (BSE, CBE), participants were asked the following: (1) how often they performed each of the breast health practices BEFORE the PSA; (2) how often they plan to perform each of the breast health practices AFTER the PSA; and (3) how many times they have performed each of the breast health practices AFTER the PSA.

Statistical Analyses

All the data analyses were conducted using SPSS 12.0. Multiple logistic regression analyses were conducted to examine factors associated with each of the outcome variables of interest: (1) knowledge of breast health guidelines, (2) knowledge of BSE, (3) having had a BSE within the past month, (4) having had a CBE within the past year, and (5) having had a MAM within the past year. Due to the exploratory nature of the research questions, the selection of correlating variables was based on a screening procedure using separate bivariate logistic regression analyses examining the relationship between each of the potential correlating variables and each of the four outcome variables. A correlating variable was selected when the association with at least one of the outcome variables reached a p value of 0.10 or smaller. The correlating variables examined included the following: demographics (age, marital status, education, employment status, household, and income), acculturation (years lived in the United States and ability to speak English), medical service access indicators (medical insurance, having a physician whom they saw regularly), and specific relevant experiences (viewing PSA and knowing someone close who has breast cancer). All of the correlating variables examined met the selection criterion and were included in subsequent multiple logistic regression analyses. Separate multiple logistic regression analyses were conducted on each outcome variable of interest using an alpha level of 0.05 to assess the statistical significance of each correlating variable in the presence of other correlating variables.

Results

All participants but one (99.9%) who were born outside of the United States have lived in the United States for 10.8 years ($SD = 7.6$, range: 1–55 years). The mean age of the sample was 48.4 years ($SD = 10.9$, range: 19–91 years old); 72.6% had medical insurance, and 73.9% had a physician whom they saw regularly. Out of the 710 survey participants, two thirds (67.0%, $n = 476$) were viewers who have viewed or heard of the PSAs and 33.0% ($n = 234$) were nonviewers or have not heard or viewed the PSAs. Participant characteristics are presented in Table 1.

Knowledge of Breast Health Guidelines

Out of the four breast health guidelines, 41.5% ($n = 295$) of the participants were able to identify all of the guidelines, and 16.1% ($n = 114$) could not identify any of the guidelines. The most well known guideline was having a mammogram annually for women over 40 years old as correctly identified by 71.0% of the participants, followed by the guidelines on monthly BSE (68.3%) and CBE annually for women over 40 (68.3%). The guideline that was least known was having a CBE every 1–3 years for women under 40, where 49.4% were able to identify this as a recommendation. Among those who viewed the PSA, 23.9% ($n = 113$) claimed that they already knew the guidelines prior to the PSA, excluding these 113 viewers from the multiple logistic regression model. Table 2 shows the factors associated with being able to identify all the four breast health guidelines. Having a high school or beyond education ($OR = 1.53$; 95% CI: 1.01–2.31), originating from Hong Kong as compared with other birth places ($OR = 2.54$; 95% CI: 1.16–5.55), and having

Table 1. Participant characteristics

	%
Age	
Below 30	3.5
30–39	17.3
40–49	32.5
50–59	30.6
60 or older	16.1
Marital status	
Married	91.1
Widow/divorced/separated	4.4
Single	4.5
Education	
Less than high school/GED	56.6
High school/GED	31.9
Technical degree/ some college	6.0
Bachelor's or more advanced degree	5.5
Employment status	
Full time or part time	82.4
Not presently employed	10.8
Other (retired, student, or other)	6.8
Native tongue	
Chinese	99.3
English or other	0.7
Chinese dialects spoken ^a	
Cantonese	93.7
Mandarin	30.6
Other	4.2
Preferred languages ^a	
English	3.4
Cantonese	92.7
Mandarin	11.7
Other	2.8
Ability to speak English	
Not at all	53.2
Somewhat	28.8
Moderately	12.7
Very or extremely well	5.4
Yearly household income	
Less than \$10,000	26.5
\$10,000–19,999	29.3
\$20,000 – 39,999	30.6
\$40,000 or higher	13.5

(Continued)

Table 1. Continued

	%
Place of birth	
China	75.8
Hong Kong	14.5
Vietnam	3.8
Taiwan	9.0
United States	0.1
Other	3.8
Years lived in United States	
1–5	25.9
6–10	32.1
11–15	20.1
>15	21.3

Note: Percentages may not add up to 100% due to rounding errors. The amount of missing data ranges from 0 to 12 (0.0%–1.7%).

^aThe categories are not mutually exclusive; therefore, the sum of percentages may exceed 100%.

viewed the PSA (OR = 1.96; 95% CI: 1.35–2.85) were significantly associated with the ability to identify all four guidelines.

Knowledge of Performing Breast Self-exam (BSE)

More than half of the participants (61.5%, $n = 437$) reported knowing how to perform BSE. Among the viewers, 30.6% ($n = 145$) indicated that they already knew how to perform BSE prior to viewing of the PSA. When these viewers were excluded from the logistic regression analysis, having a high school or beyond education (OR = 1.53; 95% CI: 1.01–2.34), having a physician whom they saw regularly (OR = 2.15; 95% CI: 1.11–4.15), knowing someone close who has breast cancer (OR = 1.63; 95% CI: 1.01–2.63), and having viewed the PSA (OR = 2.25; 95% CI: 1.53–3.29) were the significant factors associating with knowing how to perform BSE. Table 2 shows the variables associated with knowledge of performing BSE.

Breast Health Practices

Breast Self-examination (BSE)

About 1 in 4 participants, 28.7% ($n = 204$) reported never have performed BSE; 46.2% ($n = 328$) reported the most recent BSE was within the past month. Among the viewers of the PSA, 43.7% ($n = 208$) reported performing BSE at least once per month prior to the PSA. Excluding these 208 viewers from the multiple logistic regression analysis, knowing someone who has breast cancer (OR = 2.56; 95% CI: 1.51–4.34), and viewing the PSA (OR = 3.12; 95% CI: 2.05–4.74) were the only significant factors associated with performing BSE within the past month. Table 2 shows the factors associating with performing BSE within the past month.

Table 2. Odds ratios for correlates of breast health guidelines knowledge and practices among Chinese American women in San Francisco

Outcome variable	Able to identify All four breast health guidelines (n = 560) ^e			Reported knowing breast self-exam (n = 526) ^b			Having had a breast self-exam in past month (n = 469) ^c			Having had a clinical breast exam in past year (n = 373) ^d			Having had a mammogram in past year (n = 340) ^e		
	Odds ratio	Wald χ^2	p	Odds ratio	Wald χ^2	p	Odds ratio	Wald χ^2	p	Odds ratio	Wald χ^2	p	Odds ratio	Wald χ^2	p
Age	1.01	0.80	0.37	1.00	0.06	0.81	1.01	1.06	0.30	0.98	1.73	0.19	0.98	0.78	0.38
Married	0.89	0.13	0.72	0.58	2.32	0.13	1.20	0.22	0.64	3.36	4.82	0.03	0.89	0.04	0.83
Education—High school or more	1.53	4.05	0.04	1.53	3.93	0.05	1.02	0.01	0.92	0.97	0.01	0.93	0.65	1.86	0.17
Employment status^f															
Full or part time	0.77	0.71	0.40	1.12	0.11	0.74	1.16	0.20	0.66	0.78	0.39	0.53	1.04	0.01	0.93
Other	0.99	<.01	0.99	2.77	3.60	0.06	0.90	0.04	0.84	0.48	1.23	0.27	0.49	0.83	0.36
Yearly household income above \$10 K	1.26	0.99	0.32	1.16	0.39	0.53	0.84	0.43	0.51	0.82	0.38	0.54	1.13	0.12	0.73
Born in China	1.42	1.09	0.30	0.94	0.03	0.85	0.90	0.09	0.76	1.64	1.36	0.24	1.16	0.11	0.74
Born in Hong Kong	2.54	5.48	0.02	1.19	0.19	0.66	1.10	0.05	0.82	1.84	1.35	0.25	1.28	0.21	0.65
Lived in the U.S. for 10 years or longer	1.19	0.75	0.39	1.05	0.05	0.83	1.23	0.88	0.35	1.56	2.70	0.10	1.88	5.09	0.02
Speak English^g															
Somewhat	0.77	1.30	0.25	0.84	0.55	0.46	0.86	0.33	0.57	0.94	0.04	0.85	1.64	2.25	0.13
Moderately or better	0.60	2.50	0.11	1.15	0.18	0.67	1.31	0.56	0.45	0.81	0.23	0.63	0.46	2.00	0.16
Had medical insurance	0.94	0.04	0.84	0.78	0.55	0.46	0.57	2.28	0.13	0.75	0.37	0.54	1.49	0.82	0.37

(Continued)

Table 2. Continued

Outcome variable	Able to identify All four breast health guidelines (n = 560) ^a		Reported knowing breast self-exam (n = 526) ^b		Having had a breast self-exam in past month (n = 469) ^c		Having had a clinical breast exam in past year (n = 373) ^d		Having had a mammogram in past year (n = 340) ^e						
	Odds ratio	Wald χ^2	Odd ratio	Wald χ^2	Odds ratio	Wald χ^2	Odds ratio	Wald χ^2	Odds ratio	Wald χ^2					
Had a physician seen regularly	1.13	0.15	0.70	2.15	5.18	0.02	1.67	1.91	0.17	5.05	11.08	<0.01	1.98	2.18	0.14
Viewed PSA	1.96	12.35	<0.01	2.25	17.25	<0.01	3.12	28.27	<0.01	2.98	18.64	<0.01	1.97	6.28	0.01
Knew someone close has breast cancer	0.21	1.30	0.25	1.63	3.94	0.05	2.56	12.07	<.01	2.06	5.13	0.02	2.43	6.62	0.01

^a150 participants were excluded from the analyses, including 113 viewers who claimed that they knew the guidelines prior to the PSA, and 37 participants who had missing data in one or more of the correlating variables.

^b184 participants were excluded in this analyses, including 145 viewers who claimed that they knew how to perform BSE prior to the PSA, 37 participants who had missing data in one or more of the correlating variables, and 2 participants who did not respond to the outcome variable.

^c241 participants were excluded in this analyses, including 208 viewers who reported doing BSE once a month prior to the PSA, 31 participants who had missing data in one or more of the correlating variables, and 2 participants who did not respond to the outcome variable.

^d337 participants were excluded in this analyses, including 244 viewers who reported having a CBE once a year prior to the PSA, 47 participants who had missing data in one or more of the correlating variables, and 46 participants who did not respond to the outcome variable.

^e370 participants were excluded in this analyses, including 147 participants who were less than 40 years of age, 3 participants who did not report age, 156 viewers who reported having had a mammogram once a year prior to the PSA, 23 participants who had missing data in one or more of the correlating variables, and 41 participants who did not respond to the outcome variable.

^fReference group: Not presently employed (employment status).

^gReference group: Not at all (ability to speak English).

Clinical Breast Examination (CBE)

In the study sample, 16.9% ($n = 120$) participants reported never having had a CBE; 42.9% ($n = 305$) reported the last CBE was within the past year. In accordance with the guideline recommendations, 49.1% ($n = 246$) of the participants who were over 40 years of age reported a CBE within the past year, and 67.3% ($n = 99$) of those who were under 40 years old reported a CBE less than 3 years ago. Nearly half (45.7%, $n = 59$) of the participants who were under 40 years old have had a CBE within the past year. Among viewers of the PSA, 51.3% ($n = 244$) reported having a CBE once per year prior to the PSA. Excluding these 244 viewers from the multiple logistic regression analysis, being married (OR = 3.36; 95% CI: 1.14–9.92), having a physician whom they saw regularly (OR = 5.05; 95% CI: 1.95–13.21), knowing someone who has breast cancer (OR = 2.06; 95% CI: 1.11–3.86), and viewing the PSA (OR = 2.98; 95% CI: 1.82–4.90) were significantly associated with having had a CBE in the past year. Table 2 shows the factors associated with having had a CBE in the past year.

Mammography (MAM)

In the study sample, 79.2% ($n = 560$) were 40 years of age or older, among which 21.4% ($n = 120$) have never had a MAM and 37.1% ($n = 208$) reported having had a MAM within the past year. Among viewers of the PSA, 27.9% ($n = 156$) reported having had a MAM once per year prior to the PSA. Excluding these 156 viewers from the multiple logistic regression analysis, we find that having lived in the United States for 10 or more years (OR = 1.88; 95% CI: 1.09–3.25), knowing someone who has breast cancer (OR = 2.43; 95% CI: 1.24–4.79), and viewing the PSA (OR = 1.97; 95% CI: 1.16–3.36) were significantly associated with having had a MAM in the past year (Table 2). Interestingly, having a physician whom they saw regularly was not a significant correlating variable for having had a MAM in the past year (OR = 1.98; 95% CI: 0.80–4.92).

Viewers' Evaluation of the PSA

The overall ratings of the PSAs by the viewers were positive; 98.5% reported that the PSA was easy to understand, 99.8% rated the PSA “appropriate” to “somewhat appropriate,” and 89.8% rated the PSAs as “excellent” or “good.”

Discussion

To our knowledge, the study presented here is the first to report the effectiveness of employing ethnic media through PSAs as a health education intervention in promotion of breast health targeting immigrant Chinese Americans. The PSAs are uniformly effective in improving knowledge of breast health guidelines, teaching Chinese women how to perform BSE, and increasing breast health practices. Findings from our study concur with results reported in the literature targeting Vietnamese Americans that the media-led education campaign was effective in promoting breast cancer screening (Jenkins et al., 1999). We were able to establish the validity of the five hypotheses. When compared with women who had not viewed or heard of the PSAs, the viewers were more knowledgeable about the breast health guidelines, were more likely to know how to perform a BSE, and to have performed one in the past month, and were more likely to have had a CBE and MAM in the

past year. Viewers who reported that they knew or followed any of the breast health practices prior to the PSAs were excluded in these analyses.

The breast health guidelines for monthly BSE, yearly CBE, or annual MAM for women over 40 were readily identified by a majority of the participants (68%–71%). About half of the participants were not familiar with the guideline for CBE every 1–3 for women under 40. Viewers of the PSAs were almost twice as likely to correctly identify all four of the guidelines. Previous citations have proven that utilizing media is an effective intervention tool in reaching the public regarding health messages (Agha, 2003; Brownstein et al., 1992; Hornik, 2002; Jenkins et al., 1999; Mayer et al., 1992; Ramirez et al., 1998; Rimer, 2000; Yu et al., 2001). Results indicate that having a high school or beyond education and originating from Hong Kong as compared with other birthplaces were additional factors associated with the ability to identify all guidelines. As supported by Yu and Colleagues, women with higher than elementary education were more likely to know about and to use CBE and BSE (Yu et al., 2001). It is probable that women residing in Hong Kong have more Western influence than other regions reported in the study and thus pay more attention to breast health practices.

While it is encouraging that viewers were twice as likely to report knowing how to perform BSE than the nonviewers, a large portion (38.5%) of Chinese women indicated uncertainty of how to perform a BSE. Findings suggest a strong positive relationship between knowledge of how to perform BSE and the likelihood of having a BSE in the past month. When we used logistic regression analyses to examine how knowledge was associated with BSE, we found that those who indicated “yes” in knowing how to perform BSE were significantly more likely to report performing BSE in the past month than those who said “somewhat” (OR: 2.0, 95% CI: 1.3–3.1) and those who said “no” knowledge of BSE (OR: 71.8, 95% CI: 25.9–199.0). Having a high school or beyond education, having a physician whom they saw regularly, and knowing someone close who had breast cancer were other factors associated with the knowledge of performing BSE. Only knowing someone close who has breast cancer in addition to viewing a PSA however, were factors associated with the performance of BSE in the past month. Studies reported that low education level and not having a regular physician are negative correlates of health behaviors and compliance to screening guidelines (Ho et al., 2005; Tang, Solomon, & McCracken, 2000). Knowing someone close who had breast cancer may have alerted the participants to practice BSE regularly. Moreover, Ho and Colleagues (2005) indicated that presence of family history of cancer was a significant positive factor for performing BSE and clinical breast exam.

Similar to BSE, seeing a physician regularly, knowing someone who has breast cancer, and viewing the PSA were again positive correlates for having a CBE in the past year. We also found that, similar to other studies being married was a positive correlate for having a CBE (Coughlin & Uhler, 2000; Ho et al., 2005; Jones, Caplan, & Davis, 2003).

Knowing someone who has breast cancer and viewing the PSA were repeatedly found to be positively associated with breast cancer screenings, including MAM. An additional factor found in our study for having a MAM was length of stay in the United States. Participants who had lived in the United States for 10 or more years were almost twice as likely to have had a MAM in the past year. This phenomenon may be due to acculturation factors suggested by many other investigators (Ho et al., 2005; Juon, Kim, Shankar, & Han, 2004; Maxwell, Bastani, & Warda, 2000).

Despite the encouraging results, the portion of Chinese women who did not know the guidelines is sizeable, indicating the need for education and promotion of breast health practices in this population. Also, results of the analyses summarized in this report should be interpreted with the consideration of the following limitations: the current study design is not a randomized trial; viewers and nonviewers were self-selected rather than randomly assigned. Given the nature of the media campaign, random assignment of who is going to view the campaign materials is not possible. There are biases in the self-selection process, where Chinese women who are more aware of and motivated to follow the breast health practices may be more likely to be viewers. Given the limitation in the design, we attempted to conduct a more conservative estimate of the effectiveness by excluding viewers who reported that they were already adhering to the recommended breast health practice in testing the hypotheses.

Furthermore, current data are based on a convenience sample of Chinese women who may not be representative of the Chinese women population in the San Francisco Bay Area. Therefore, the findings are confined to individuals who have participated in the study. The findings can be generalized to women who share demographic backgrounds similar to those of the survey participants.

Conclusion

The findings support the use of Chinese media to reach immigrant Chinese Americans. Much more work to educate, increase awareness, and motivate women in this population to adhere to the breast health guidelines for breast cancer prevention, however, is warranted. Future researchers ascertaining the effectiveness of media campaigns targeting immigrant Chinese populations may need to design a study that includes a control group to investigate factors associated with promoting breast health practices. An identified sample with pre- and post-test may help minimize response bias among the participants.

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