

Screening Mammography Among Chinese Canadian Women

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ABSTRACT

Background: Though breast cancer is the most common malignancy among Chinese women, screening mammography is underutilized. This study examined barriers and facilitators of screening mammography among Chinese Canadian women.

Methods: Using community-based sampling, Chinese women in British Columbia were interviewed in 1999 about multiple preventive health behaviours. We included 213 women in the mammography analysis; main outcome measures were ever having a mammogram and routine mammography.

Results: Seventy-five percent of women 50 to 79 years old reported ever having had a mammogram, and 53% had two or more mammograms within the last five years. Receiving a recommendation for a mammogram from medical personnel or from a family member, and believing that cancer cannot be prevented by faith were independently associated with both screening outcomes.

Conclusions: A multifaceted approach to screening mammography promotion in Chinese Canadian women is suggested. Interventions that include education of and by medical providers and family members should be considered.

La traduction du résumé se trouve à la fin de l'article.

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Breast cancer is the most common malignancy among Chinese women,¹ and migration from China to North America is associated with a 20 to 50% higher incidence of breast cancer.²⁻⁸ Despite the significance of this disease, cross-sectional surveys among Chinese populations demonstrate low utilization of screening mammography.⁸⁻¹⁵

Immigration from China and, more recently, from Hong Kong and Taiwan has resulted in significant Chinese Canadian populations, particularly in urban locations such as Vancouver and Toronto. In 1996, 8% of the population of British Columbia identified themselves as Chinese; the majority live in Vancouver and Richmond in communities with the highest density of Chinese in Canada.¹⁶ Given the significant population of Chinese Canadians and the paucity of information about their screening practices, this study sought to describe utilization of screening mammography in Chinese Canadian women. We used the PRECEDE conceptual framework to examine barriers and facilitators, including measurements of acculturation and traditional Chinese beliefs.

METHODS

Study setting

This community-based survey was administered in Vancouver and Richmond, British Columbia in 1999. The Human Subjects Review Board of the University of British Columbia approved the study.

Recruitment

A Community Coalition was formed at the outset of the project, consisting of eight representatives from local Chinese organizations, including two Chinese physicians. This coalition participated in all aspects of the study. Promotion of the project included radio announcements and information in newsletters for Chinese community members. Bicultural female interviewers fluent in Cantonese, Mandarin and English, participated in twenty hours of training in survey administration. Households with Chinese surnames received an introductory letter, printed in both Chinese and English, about a week before the first interviewer contact was attempted. Interviewers then tried to contact each household up to five

times (including at least one daytime, one evening and one weekend attempt). Participants received \$15 as a token of appreciation for their time.

Sampling methods

A community-based sampling method employed the 1998 Vancouver telephone directory and a list of 178 common British Columbia Chinese surnames to randomly select households.¹⁷ The three neighbourhoods in metropolitan Vancouver with the highest density of Chinese were chosen for the survey, including Old Chinatown, East Vancouver and Richmond (60%, 36% and 33% Chinese, respectively).¹⁶

Multiple preventive behaviours (such as Pap testing, mammography and hepatitis B screening) were assessed in the study. Thus, to minimize participant burden, three versions of the instrument were developed. Households were randomly assigned to a survey version, and two thirds of the sample was asked to complete the version with questions about mammography facilitators and barriers (Figure 1).

Eligible women (20 years or older and able to speak Cantonese, Mandarin or English) were offered study participation with informed consent. Analysis of screening mammography was restricted to women aged 50-79 years in order to reflect screening eligibility in British Columbia.

Survey instrument

The survey instrument was developed in English, translated into Chinese and back-translated into English to ensure lexical equivalence.¹⁸ Survey questions addressing PAP testing and other health behaviours are not discussed here. Mammography questions were taken from the Pathways to Early Detection instrument, which has been previously used successfully in Asian American populations.^{9,14,19} Women were asked if they ever had a mammogram and how many mammograms they had within the last five years. Survey questions addressing sociodemographic information included age, country of birth, religion, marital status, education, household income, and housing type (owned, rented or subsidized). Items also assessed the number of years lived in North America and whether women spoke English fluently.

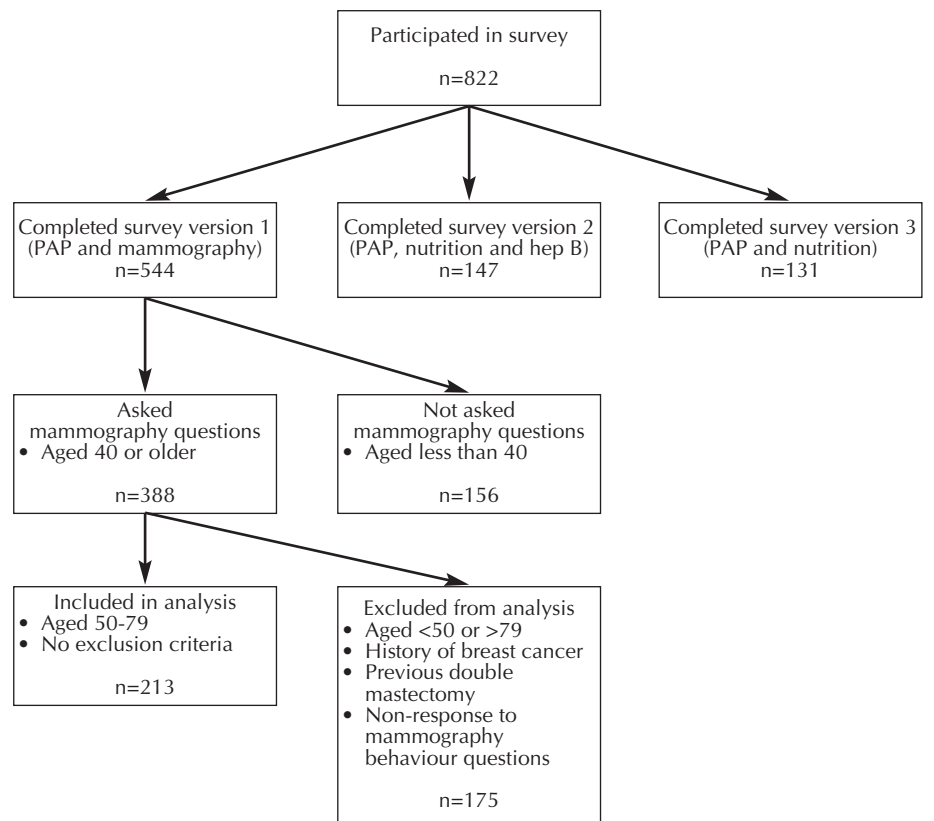


Figure 1. Definition of sample for mammography analysis

The diagnostic component of the PRE-CEDE conceptual framework was utilized in considering facilitators and barriers of screening mammography. Broad categories of predisposing, enabling and reinforcing factors are used to classify potential determinants of screening mammography.^{20,21} Predisposing factors addressed knowledge, beliefs, values and attitudes of the participant towards screening mammography and health. Several items were developed from qualitative work and included traditional Chinese beliefs about health and disease.²² Items considered enabling factors assessed availability and access to screening services. Finally, reinforcing items addressed the support and feedback of health professionals, peers and society (Table I).

Data analysis

The Screening Mammography Program of British Columbia (SMPBC) recommends that women age 50 to 79 years have a screening mammogram every two years. The other age groups have different screening recommendations,²³ thus this analysis was restricted to women between the ages of 50 and 79 years. Exclusion criteria also included a history of breast cancer or dou-

ble mastectomy and non-response to mammography questions.

Two outcome measures were considered: whether a woman ever had a mammogram, and whether she had routine or regular mammography (defined as two or more mammograms in the last five years).

Bivariate analyses with chi square tests (and Fischer's exact tests where necessary) compared those who had been screened (ever and routinely) with those who had not. Unconditional logistic regression models were used to examine factors independently associated with screening mammography. A forward step-wise selection method was used for model building in which the most significant variables (in terms of deviance change) were added to the model one at a time. After each sequential addition, there was an elimination step for any variables that no longer met the 5% significance level. This process was continued until no other variable could be added to produce a significant change in deviance.^{24,25}

Additional bivariate analyses determined which sociodemographic variables were associated with having heard of the SMPBC.

TABLE I
Factors Associated with Screening Mammography in Chinese Canadian Women

Characteristic	Total Number*	Ever Had Mammogram No. (%)*	p-value	Routine Mammography No. (%)*	p-value
Sociodemographic – Total sample					
Age (years)	213	159 (75)		113 (53)	
	50-59	81 (83)	<0.001	63 (64)	0.002
	60-69	57 (79)		36 (50)	
	70-79	21 (49)		14 (33)	
Place of birth	122	87 (71)	0.43	56 (46)	0.05
	Mainland China	87 (71)		56 (46)	
	Hong Kong	48 (79)		39 (64)	
	Other†	24 (80)		18 (60)	
Religion	60	44 (73)	0.91	27 (45)	0.30
	Buddhist	44 (73)		27 (45)	
	Christian	53 (75)		41 (58)	
	None	62 (77)		45 (56)	
Marital status	162	130 (80)	<0.001	94 (58)	0.01
	Currently married	130 (80)		94 (58)	
	Previously/Never married	29 (57)		19 (37)	
Education (years)	82	50 (61)	<0.001	36 (44)	0.049
	0-6	50 (61)		36 (44)	
	7-12	66 (83)		45 (56)	
	13+	42 (86)		32 (65)	
Household income‡	50	32 (64)	0.047	22 (44)	0.21
	< \$20,000	32 (64)		22 (44)	
	\$20,000-\$29,999	26 (87)		18 (60)	
	\$30,000-\$49,999	30 (86)		23 (66)	
	\$50,000+	16 (80)		10 (50)	
Housing type	188	143 (76)	0.09	101 (54)	0.23
	Owned	143 (76)		101 (54)	
	Rented/ Subsidized	10 (56)		7 (39)	
Proportion of life in North America	96	71 (74)	0.75	51 (53)	0.96
	0-24%	71 (74)		51 (53)	
	25-100%	88 (76)		62 (53)	
Speaks English fluently	48	43 (90)	0.007	34 (71)	0.005
	Yes	43 (90)		34 (71)	
	No	116 (70)		79 (48)	
Predisposing – Total sample					
Believe cancer due to karma/fate	213	159 (75)		113 (53)	
	Yes	20 (67)	0.28	16 (53)	0.97
	No/Don't Know	139 (76)		97 (53)	
Believe cancer prevented by faith	44	26 (59)	0.008	15 (34)	0.005
	Yes	26 (59)		15 (34)	
	No/Don't Know	133 (79)		98 (58)	
Believe cancer prevented by qi gong§	57	38 (67)	0.11	26 (46)	0.19
	Yes	38 (67)		26 (46)	
	No/Don't Know	121 (78)		87 (56)	
Believe cancer prevented by herbs	53	38 (72)	0.52	26 (49)	0.47
	Yes	38 (72)		26 (49)	
	No/Don't Know	121 (76)		87 (55)	
Believe cancer due to imbalance of yin yang§	33	24 (73)	0.78	19 (58)	0.57
	Yes	24 (73)		19 (58)	
	No/Don't Know	135 (75)		94 (52)	
Believe cancer due to poor qi§	63	47 (75)	0.93	33 (52)	0.86
	Yes	47 (75)		33 (52)	
	No/Don't Know	112 (75)		80 (54)	
Believe early detection can cure some cancer	196	150 (77)	0.04	105 (54)	0.61
	Yes	150 (77)		105 (54)	
	No/Don't Know	9 (53)		8 (47)	
Level of perceived risk of future breast cancer	52	39 (75)	0.81	27 (52)	0.03
	Don't know	39 (75)		27 (52)	
	No risk at all/Low risk	97 (73)		64 (48)	
	Mod / High/Extremely high	23 (79)		22 (76)	
Best test for detecting breast cancer	149	118 (79)	0.02	87 (58)	0.02
	Mammogram	118 (79)		87 (58)	
	Don't Know/BSE/CBE	41 (64)		26 (41)	
Enabling – Total sample					
Regular MD	213	159 (75)		113 (53)	
	None	6 (67)	0.11	3 (33)	0.04
	Male	109 (71)		76 (50)	
	Female	42 (86)		33 (67)	
Problem with transportation	22	15 (68)	0.46	14 (64)	0.29
	Yes	15 (68)		14 (64)	
	No	144 (75)		99 (52)	
Problem finding an interpreter	23	18 (78)	0.67	13 (57)	0.72
	Yes	18 (78)		13 (57)	
	No	141 (74)		100 (53)	
Problem getting an appointment	46	37 (80)	0.31	27 (59)	0.39
	Yes	37 (80)		27 (59)	
	No	122 (73)		86 (52)	
Doctor visit in the last year	155	119 (77)	0.24	87 (56)	0.14
	Yes	119 (77)		87 (56)	
	No	40 (69)		26 (45)	
Traditional healer visit in the last year	78	61 (78)	0.36	45 (58)	0.30
	Yes	61 (78)		45 (58)	
	No/Don't Know	98 (73)		68 (50)	
Additional private insurance	31	28 (90)	0.03	21 (68)	0.08
	Yes	28 (90)		21 (68)	
	No	131 (72)		92 (51)	
Reinforcing – Total sample					
Recommendation by MD or nurse	213	159 (75)		113 (53)	
	Yes	113 (86)	<0.001	88 (67)	<0.001
	No	46 (56)		25 (30)	
Recommendation by family	96	86 (90)	<0.001	69 (72)	<0.001
	Yes	86 (90)		69 (72)	
	No	73 (62)		44 (38)	
Close contact with history of cancer	126	100 (79)	0.06	70 (56)	0.38
	Yes	100 (79)		70 (56)	
	No	59 (68)		43 (49)	
Mammography information from newspaper or magazine	111	88 (79)	0.11	68 (61)	0.01
	Yes	88 (79)		68 (61)	
	No	71 (70)		45 (44)	
Mammography information from radio or TV	167	130 (78)	0.04	93 (56)	0.14
	Yes	130 (78)		93 (56)	
	No	29 (63)		20 (43)	
Mammography information from pamphlet	103	89 (86)	<0.001	66 (64)	0.001
	Yes	89 (86)		66 (64)	
	No	69 (63)		46 (42)	

* Total numbers may not equal 213 (100%) due to missing values

† Includes Cambodia, Laos, Malaysia, Myanmar (Burma), Taiwan, Thailand, Vietnam, and North America (one woman born outside of Asia)

‡ Missing 37% of income data

§ Fundamental concepts in traditional Chinese medicine: qi gong, breathing and meditation techniques to promote circulation of blood or qi; yin yang, opposite principles found in the universe; qi, vital energy

|| mod, moderate; BSE, breast self exam; CBE, clinical breast exam

RESULTS

Patient characteristics

Nineteen hundred (1,900) Chinese households were initially identified for the study, with 822 women ultimately participating in the survey. The estimated total household response rate (including estimated response among houses not contacted) was 55%, and the cooperation rate (among reachable and eligible houses) was 62% (Table II). Rates were the same for each of the three survey versions. Five hundred forty-four (544) women completed survey version 1, which included the mammography questions, 388 of whom were older than 40 years and thus mammography candidates. Exclusion of 145 women ages 40-49, 15 women age 80 and over, 14 women with a history of breast cancer or double mastectomy, and 1 woman who did not respond to questions for mammography screening history left 213 women for this analysis (Figure 1).

Most women were in the 50-59 year age group, were married and born in Mainland China. The majority owned their own homes and reported they were not fluent in English (Table I).

Eighty-four percent of respondents had heard of the SMPBC, and among these women, 84% reported having had at least one mammogram, as compared to 24% among those who were unaware of the program, a statistically significant difference ($p < 0.001$). Women unaware of the SMPBC were older ($p < 0.001$), unmarried ($p < 0.001$), less educated ($p = 0.03$), lower income ($p = 0.01$), not fluent in English ($p = 0.04$), and lived in rented or subsidized housing ($p = 0.006$). Nineteen women (9%) had heard of the Asian Women's Health Clinic (a screening clinic in a local hospital providing service in Cantonese and Mandarin), and these women were not more likely than their unaware counterparts to have had a mammogram (79% compared to 75%, $p = 0.69$).

Bivariate analyses

One hundred and fifty-nine women (75%) reported a prior mammogram, and 113 women (53%) reported two or more mammograms in the last five years (Table I). In the bivariate analyses, variables associated with both outcome variables (*ever and routine screening*) included being younger, married, more educated, and speaking

TABLE II

Summary of Survey Response

Addresses attempted		
A.	Not a residential address	74
B.	Eligibility not established (no contact after five attempts)	209
C.	Verified to be ineligible	300
D.	Eligible but refused	495
E.	Completed	822
Estimates*		
F.	Estimated proportion of eligibles among households where eligibility was not established	81%
G.	Estimated number of eligibles among households where eligibility was not established	169
Response rates		
H.	Estimated total household response rate†	55%
I.	Cooperation rate‡	62%

* $F = (D+E)/(C+D+E)$; $G = F \times B$

† Includes estimated response among houses not contacted; $H = E/(D+E+G)$

‡ Response rate among contacted households with eligible persons; $I = E/(D+E)$

English fluently. Significant relationships between predisposing factors and mammography outcomes included believing that cancer cannot be prevented by faith, and believing that mammography is the best test for detecting breast cancer. Significant reinforcing factors included recommendation of mammography by a physician/nurse or by family; and receiving mammography information from a pamphlet.

Factors associated with ever having had a mammogram, but not routine screening included: higher income, believing that early detection can prevent some cancer, additional private insurance, and receiving mammography information from radio/TV. Variables associated solely with routine screening were: having a moderate to extremely high perception of future risk of breast cancer, having a female physician, and receiving mammography information from a newspaper/magazine.

Multiple regression analyses

Factors that were independently associated with ever having a mammogram included believing that cancer cannot be prevented by faith; recommendations for mammography by a physician/nurse or by family; and receiving information from a pamphlet. Routine mammography was independently associated with speaking English, believing that cancer cannot be prevented by faith, believing that mammography is the best test for breast cancer, and receiving a recommendation for mammography from a physician/nurse, or by family (Table III).

DISCUSSION

Seventy-five percent of the Chinese Canadian women in this study reported a

prior mammogram, which compares favourably to a similar survey of Chinese American women in Seattle (ages 40 and older) in which 74% reported prior mammography.¹³ Historically, screening mammography utilization has been lower in Canada than in the United States,²⁶⁻²⁹ and it is conceivable that this apparent equivalence of mammography use could be attributed to the no-cost accessibility of the SMPBC for this ethnic minority group. Nevertheless, a quarter of women in the study had never had a prior mammogram and nearly half were not subscribing to routine mammography, indicating the need for mammography promotion in this population.

Studies of other populations have demonstrated lower mammography use among older, unmarried women with lower education and income.³⁰⁻³⁵ We found that age, marital status, and education were associated with screening behaviour in the bivariate analyses, and that older, less educated, lower income women who were not fluent in English were less aware of the SMPBC. Thus these demographic features should be considered in mammography promotion planning.

Several studies have suggested that acculturation is a significant determinant of screening mammography in Chinese American populations.^{10,12} English fluency, a proxy measure of acculturation, was an independent predictor of routine screening, thus suggesting initiatives which increase accessibility of screening mammography to non-English speakers.

Traditional Chinese cultural beliefs about health and disease were explored as predisposing factors within the PRECEDE behavioural model framework. The only

TABLE III
Independent Factors Associated with Screening Mammography

Characteristic	Ever Had Mammogram (n=200)*			Routine Mammography (n=200)*		
	OR	95% CI	p-value	OR	95% CI	p-value
Sociodemographic						
Speaks English						
Yes				3.7	(1.6, 9.4)	0.007
No				1.0		
Predisposing						
Believe cancer prevented by faith						
Yes	0.4	(0.2, 0.98)	0.04	0.3	(0.1, 0.7)	0.01
No	1.0			1.0		
Best test for detecting breast cancer						
Mammogram				2.5	(1.2, 5.4)	0.01
Don't Know/BSE/CBE†				1.0		
Reinforcing						
Recommendation by MD or nurse						
Yes	2.6	(1.2, 5.6)	<0.001	3.9	(1.9, 8.0)	<0.001
No	1.0			1.0		
Recommendation by family						
Yes	3.4	(1.5, 8.2)	0.001	2.6	(1.3, 5.2)	0.001
No	1.0			1.0		
Mammography information from pamphlet						
Yes	3.4	(1.6, 7.6)	0.002			
No	1.0					

* Sample size for the analyses is less than 213 due to missing values in the data.

† BSE, breast self exam; CBE, clinical breast exam

traditional belief that was associated (negatively) with screening was that cancer can be prevented by faith in God or Buddha. Among those identifying themselves as Christians, 34% believed cancer could be prevented by faith, compared to 27% of Buddhists and 5% of those professing no religion. This is distinct from a professed belief in karma or fate, which was not associated with screening. Further study of this finding is needed to better understand how screening mammography could be encouraged in this subgroup.

The lack of significant enabling factors associated with screening mammography in our study may be an indication that no-cost mammography in Canada improves access in this ethnic minority population.

Reinforcing factors were most consistently associated with mammography. Recommendations by medical personnel and by family were independent correlates of screening for both ever and routine screening. Prior surveys have described the importance of physician recommendation in Asian groups, including Chinese Americans.^{10,32,36-38} The association between recommendations by family members and screening may reflect the influence of traditional patriarchal Chinese culture,³⁹ though this was not explored in this study. Potential avenues for mammography promotion thus might include educational interventions for medical providers and family members of Chinese women, who could then, in turn, recom-

mend mammography to patients and family members.

The results of this study are potentially limited in several ways. The relatively low response rate and voluntary nature of the survey allow for the possibility of response bias. Other limitations include possible acquiescence bias^{13,40} (a tendency to respond affirmatively to questions indiscriminately); that the results also may not generalize to other Chinese populations; and that the cross-sectional nature of the study limits the ability to infer causality. Strengths of the study include the community-based sampling method and integral use of a theoretical behavioural model to guide the project.

Nearly half of Chinese Canadian women in this study did not appear to undergo routine mammography. Our findings suggest that mammography promotion through medical personnel and family members would increase preventive screening in this population.

REFERENCES

- Miller B, Kolonel L, Bernstein L, Young JL, Swanson GM, West CR, et al. Racial/Ethnic Patterns of Cancer in the United States 1988-1992. Bethesda, MD: National Cancer Institute, 1996.
- Li FP, Pawlish K. Cancers in Asian Americans and Pacific Islanders: Migrant studies. *Asian Am Pac Isl J Health* 1998;6(2):123-29.
- Wu AH, Ziegler RG, Horn-Ross PL, Nomura AM, West DW, Kolonel LN, et al. Tofu and risk of breast cancer in Asian-Americans. *Cancer Epidemiol Biomarkers Prev* 1996;5(11):901-6.
- Yu H, Harris RE, Gao YT, Gao R, Wynder EL. Comparative epidemiology of cancers of the

colon, rectum, prostate and breast in Shanghai, China versus the United States. *Int J Epidemiol* 1991;20(1):76-81.

- Ziegler RG, Hoover RN, Pike MC, Hildesheim A, Nomura AM, West DW, et al. Migration patterns and breast cancer risk in Asian-American women. *J Natl Cancer Inst* 1993;85(22):1819-27.
- Stanford JL, Herrinton LJ, Schwartz SM, Weiss NS. Breast cancer incidence in Asian migrants to the United States and their descendants. *Epidemiology* 1995;6(2):181-83.
- Koh HK, Sun T, Zhang YQ. Cancer in Asian Americans and Pacific Islander Populations. *Asian Am Pac Isl J Health* 1996;4(1-3):121-24.
- Yu MY, Seetoo AD, Tsai CK, Sun C. Sociodemographic predictors of Papanicolaou smear test and mammography use among women of Chinese descent in southeastern Michigan. *Womens Health Issues* 1998;8(6):372-81.
- Lee M, Lee F, Stewart S. Pathways to Early Breast and Cervical Detection for Chinese American Women. *Health Educ Q Suppl* 1996;23:S77-S88.
- Yu ESH, Kim KK, Chen EH, Brintnall RA. Breast and Cervical Cancer Screening among Chinese American Women. *Cancer Pract* 2001;9(2):81-91.
- Kagawa-Singer M, Pourat N. Asian American and Pacific Islander breast and cervical carcinoma screening rates and healthy people 2000 objectives. *Cancer* 2000;89(3):696-705.
- Tang TS, Solomon LJ, McCracken LM. Cultural barriers to mammography, clinical breast exam, and breast self-exam among Chinese-American women 60 and older. *Prev Med* 2000;31(5):575-83.
- Tu SP, Yasui Y, Kuniyuki AA, Schwartz SM, Jackson JC, Hislop TG, et al. Mammography screening among Chinese American women. *Cancer* 2003;97(5):1293-302.
- Hiatt RA, Pasick RJ, Perez-Stable E, McPhee SJ, Engelstad L, Lee M, et al. Pathways to early detection in the multiethnic population of the San Francisco Bay area. *Health Educ Q Suppl* 1996;23:S10-S27.
- Tu SP, Taplin SH, Barlow WE, Boyko EJ. Breast cancer screening by Asian-American women in a managed care environment. *Am J Prev Med* 1999;17(1):55-61.
- Statistics Canada. Census Recensement 96. 1996. Available on-line at <http://www.statcan.ca/english/census96/feb17/vmbc.htm>

17. Hislop TG, Schwartz SM, Taylor V, Jackson JC, Tu SP. Identification of Chinese Subjects for Etiological and Cancer Control Research: Description of Sampling Methods Based Upon Surnames. New Orleans: North American Association of Central Cancer Registries Annual Meeting, 2000;87.
18. Eyton J, Neuwirth G. Cross-cultural validity: Ethnocentrism in health studies with special reference to the Vietnamese. *Soc Sci Med* 1984;18(5):447-53.
19. McPhee SJ, Bird JA, Ha NT, Jenkins C, Fordham D, Le B. Pathways to early cancer detection for Vietnamese women: *Suc Khoe La Vang!* (Health is Gold!) *Health Educ Q Suppl* 1996;23:S60-S75.
20. Curry SJ, Emmons K. Theoretical models for predicting and improving compliance with breast cancer screening. *Ann Behav Med* 1994;16:302-16.
21. Green L, Krueger M. Applications of PRECEDE-PROCEED in Community Settings. *Health Promotion Planning: An Educational and Environmental Approach*. Palo Alto: Mayfield, 1991.
22. Jackson JC, Do H, Chitnarong K, Tu SP, Marchand A, Hislop TG, et al. Development of cervical cancer control interventions for Chinese immigrants. *J Immigrant Health* 2002;4(3):147-57.
23. Screening Mammography Program of British Columbia. Information about screening mammogram for women in their 50s, 60s and 70s. Vancouver: SMPBC, 2001.
24. Rosner B. *Fundamentals of Biostatistics*, Fifth ed. Boston: Duxbury, 2000.
25. Kleinbaum DG. *Logistic Regression: A Self-learning Text*. New York: Springer-Verlag, 1994.
26. Katz SJ, Larson EB, LoGerfo JP. Trends in the utilization of mammography in Washington State and British Columbia: Relation to stage of diagnosis and mortality. *Med Care* 1992;30(4):320-28.
27. Katz SJ, Hislop TG, Thomas DB, Larson EB. Delay from symptom to diagnosis and treatment of breast cancer in Washington State and British Columbia. *Med Care* 1993;31(3):264-68.
28. Katz SJ, Hofer TP. Socioeconomic disparities in preventive care persist despite universal coverage. Breast and cervical cancer screening in Ontario and the United States. *JAMA* 1994;272(7):530-34.
29. Katz SJ, Zemencuk JK, Hofer TP. Breast cancer screening in the United States and Canada, 1994: Socioeconomic gradients persist. *Am J Public Health* 2000;90(5):799-803.
30. Mandelblatt JS, Gold K, O'Malley AS, Taylor K, Cagney K, Hopkins JS, et al. Breast and cervix cancer screening among multiethnic women: Role of age, health, and source of care. *Prev Med* 1999;28(4):418-25.
31. Hiatt RA, Pasick RJ, Stewart S, Bloom J, Davis P, Gardiner P, et al. Community-based cancer screening for underserved women: Design and baseline findings from the Breast and Cervical Cancer Intervention Study. *Prev Med* 2001;33(3):190-203.
32. O'Malley MS, Earp JA, Hawley ST, Schell MJ, Mathews HF, Mitchell J. The association of race/ethnicity, socioeconomic status, and physician recommendation for mammography: Who gets the message about breast cancer screening? *Am J Public Health* 2001;91(1):49-54.
33. Stein JA, Fox SA, Murata PJ. The influence of ethnicity, socioeconomic status, and psychological barriers on use of mammography. *J Health Soc Behav* 1991;32(2):101-13.
34. Grana G. Ethnic differences in mammography use among older women: Overcoming the barriers. *Ann Intern Med* 1998;128(9):773-75.
35. Qureshi M, Thacker HL, Litaker DG, Kippes C. Differences in breast cancer screening rates: An issue of ethnicity or socioeconomic status? *J Womens Health Gend Based Med* 2000;9(9):1025-31.
36. Maxwell AE, Bastani R, Warda US. Mammography utilization and related attitudes among Korean-American women. *Women Health* 1998;27(3):89-107.
37. McPhee SJ, Stewart S, Brock KC, Bird JA, Jenkins CN, Pham GQ. Factors associated with breast and cervical cancer screening practices among Vietnamese American women. *Cancer Detect Prev* 1997;21(6):510-21.
38. Pham CT, McPhee SJ. Knowledge, attitudes, and practices of breast and cervical cancer screening among Vietnamese women. *J Cancer Educ* 1992;7(4):305-10.
39. Mo B. Modesty, sexuality, and breast health in Chinese-American women. *West J Med* 1992;157(3):260-64.
40. Nguyen TT, McPhee SJ, Somkin CP, Vo P, Nguyen BH, Shema SJ. How valid are PAP smear and mammogram self-reports in a multiethnic population? *J Gen Intern Med* 2001;16(S1):160.

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RÉSUMÉ

Contexte : Le cancer du sein est la tumeur maligne la plus répandue chez les Chinoises, mais la mammographie de dépistage est sous-utilisée. L'étude porte sur les obstacles et les facteurs facilitants de cet outil de dépistage chez les Canadiennes d'origine chinoise.

Méthode : Par échantillonnage à l'échelon de la collectivité, nous avons interviewé des Chinoises de Colombie-Britannique en 1999 au sujet de divers comportements préventifs liés à la santé. L'analyse des données sur la mammographie portait sur 213 femmes; nos principaux indicateurs de résultats étaient le fait d'avoir déjà eu une mammographie et le fait d'en avoir périodiquement.

Résultats : Soixante-quinze p. cent des femmes de 50 à 79 ans ont dit avoir déjà eu une mammographie, et 53 % en avaient eu deux ou plus au cours des cinq années précédentes. Les deux indicateurs étaient indépendamment associés au fait qu'un membre du personnel médical ou de la famille ait recommandé une mammographie et à la conviction que la foi ne peut prévenir le cancer.

Conclusion : Nous suggérons une approche multidimensionnelle pour la promotion de la mammographie de dépistage auprès des Canadiennes d'origine chinoise. Il faudrait envisager des mesures comme la sensibilisation des dispensateurs de soins médicaux et des membres de la famille.