



Michael Aakhus. *Monte Alban (Dyptych)*. Mixed media on canvas, each panel 72" × 48".
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Efforts to dispel stigmas and deep-seated beliefs regarding cancer may improve acceptance of preventive health measures.

Assessing Cancer Beliefs in a Chinese Immigrant Community

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Although many studies have focused on cancer screening utilization and attitudes, no study has yet been conducted that examines community beliefs toward a cancer diagnosis and some of the beliefs about cancer and cancer patients. While certain types of cancer have been decreasing in the White population, minority populations are more likely to be diagnosed in a later stage and die of cancer. Stigmas caused by a cancer diagnosis and the disease itself may be a contributing factor in late detection and increased mortality.

A telephone survey of 798 Chinese immigrants living in San Francisco was conducted. Subjects were asked several questions with established responses regarding their beliefs about cancer. One quarter of the 798 participants still believe cancer is contagious. Many also believe cancer is caused by environmental as well as personal action such as immoral behavior. A logistic regression model indicated that women who are at a low income level and have resided in the United States for an extended period of time are more likely to believe cancer is contagious.

Community stigmas toward cancer and cancer survivors will prevent some Chinese immigrants from seeking early diagnosis. Multimedia education efforts that utilize print, television, and radio may provide a point of entry to reach otherwise unreachable individuals. This concerted education effort may help to dispel some of the myths regarding cancer, its treatment, and prognosis. It is hoped this would encourage a healthy dialogue about cancer, thus increasing screening and early detection among Chinese immigrants.

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Introduction

Although breast cancer mortality has been decreasing in the white population, breast cancer remains the No. 1 cancer-related mortality for Asian American and Pacific Islander women.^{1,2} Compared with white women, minority women are more likely to be diagnosed in a later stage and die of the disease.³ Numerous studies focusing on ethnic heritage and cultural norms have been conducted recently in these communities in an attempt to better understand this disparity.^{4,6} Cultural beliefs influence the ways in which people perceive illness, how they explain and tolerate pain, how they define quality care, and how they select their caregiver. Perceptions about cancer also have grave implications for the ways people view and seek (or do not seek) breast cancer screening. Studies have examined the knowledge, beliefs, and attitudes among Filipino Americans, Korean Americans, Vietnamese Americans, and Chinese Americans.⁷⁻¹⁰ The findings from these studies can be broken down into several categories: lack of cancer knowledge, fear of cancer, acculturation, and barriers to screening. These themes do not act in a vacuum; rather, they must be seen contextually, each intricately and dynamically interwoven in a way that either helps or hinders cancer screening.

The lack of accurate knowledge about cancer and cancer treatment is still prevalent in some Asian immigrant communities. For example, a survey of Vietnamese women in San Francisco found that 52% believed that there is not much a person can do to prevent cancer.¹¹ In the same study, 96% of the women surveyed had heard of cancer but did not know the common symptoms, signs, and risk factors for either breast or cervical cancer. A study conducted in Philadelphia reported that 71% of Vietnamese American women did not know what cancer is.¹² Another study of Korean Americans and cancer screening found that most of the respondents did not see the need for cancer screening tests for early diagnosis and treatment. Not having symptoms or health problems was the overriding reason why Korean Americans did not have digital rectal examinations or fecal occult blood tests.¹³ Lack of screening adherence among Korean Americans can be attributed to lack of knowledge about screening guidelines and lack of understanding of the importance of screening.¹³

In addition to the lack of accurate knowledge, many immigrant women lack the resources and access to cancer screening. A study conducted among Vietnamese women in San Francisco and Sacramento found that 31.7% had never heard of a mammogram, 48.6% had never heard of a clinical breast examination, and 73% said they had never heard of a Papanicolaou (Pap) test.⁷ In the same

study, women who were not planning on having another mammogram cited the following reasons: "I'm healthy and don't need one," "I'm worried about the cost," and "I don't have time." Women who had not had a mammogram reported that they lacked a physician's recommendation, were concerned about the high cost, lacked the time, or did not need it because they were healthy. Common reasons for not planning another Pap test included good health, lack of a physician's recommendation, and concerns about cost, pain, and embarrassment.^{6,7,11}

Newly immigrated women, especially those with a lower level of education, are less acculturated, and are less likely to learn about preventive screening and medicine compared with those who have lived in the United States for a longer period of time.¹⁴ For Vietnamese women, each additional year of residence in the United States made a major contribution to the odds of ever having been screened.⁶ Juon et al¹⁵ also found that acculturation, proportion of life spent in the United States, and English language proficiency were significant correlates of cancer screening tests. Maxwell et al¹⁶ also identified duration of stay in the United States as a factor in obtaining cancer screening. Filipino women who had spent more time in the United States were more likely to adhere to cancer screening procedures as compared to Filipino women who had spent less of their lifetime in the United States. In addition, for Asian American women who have spent more of their lifetime in the United States, they may have higher English proficiency and better skills in negotiating the medical system compared to more recent immigrants.¹⁶

The most challenging barrier in the Asian immigrant community regarding cancer belief is overcoming the fear of cancer, a pervasive characteristic in many Asian subgroups. This fear manifests itself in fatalistic views, including fear of treatment and costs, pain, and rejection by family, friends, partners, and the community at large. These fears, together with lack of accurate information about cancer, lead many to deny cancer prevention messages, avoid cancer screening, and avoid or delay cancer treatment.¹⁷ Fatalistic views about cancer may also affect screening practices. Some Asian populations believe that if one gets cancer, it is God's punishment, God's plan, or "bad karma."

Although these are important factors that negatively affect early preventive measures such as screening services, other factors that cannot be ignored include community beliefs and biases towards cancer diagnosis. These biases could very likely be a barrier to cancer screening, negatively affecting cancer treatment as well as survivorship. To our knowledge, there has been no study conducted that focuses specifically on Chinese community beliefs toward cancer diagnosis such as perceiving cancer as a contagious disease.

When the only treatment available in cancer is early diagnosis, this belief about cancer is an important force that discourages an individual from seeking cancer screenings. This negative belief also generates stigmas toward cancer survivors, resulting in cancer patients being isolated and their quality of life jeopardized. The purpose of this survey is to try to answer an important question: Do Chinese immigrants think that cancer is contagious? We hypothesized that there is a relationship between the level of acculturation and belief towards cancer.

Methods

We conducted two focus groups to collect pilot data for a cancer beliefs study in the Chinese immigrant community in San Francisco. Group 1 included five cancer patients, and group 2 included nine non-cancer patients. Participants of group 1 were recruited through different cancer support groups in the San Francisco Chinatown area. These women were active participants of support groups and were verbal about their experiences. Participants of group 2 were recruited by the Chinese Hospital of San Francisco, Community Health Education Department. Fliers were sent to the most recent enrollees of the health plan to invite them to participate in the focus group.

The focus groups were guided by nine questions: (1) What does the word cancer mean to you? (2) Do you or does someone you know have cancer? (3) How does cancer affect your or someone's life? (4) Do you think cancer is curable? (5) How do you define the word contagious? (6) Do you think cancer is contagious? (7) What do you think causes cancer? (8) Do you think cancer screening is helpful in preventing cancer? (9) Do you believe people with cancer can still lead productive lives? Each focus group lasted 1½ hours. Both groups were conducted by the principal investigator (PI) and co-PI of this study in Cantonese. The nine guiding questions were translated into Chinese.

While most Americans are willing to openly discuss cancer when they are diagnosed, participants in both of our focus groups considered cancer a taboo subject. Besides seeing cancer as a "death sentence" or "time bomb," a few participants in both groups believed that cancer was contagious. Group 2, which included non-cancer participants, talked less about cancer as being contagious than did group 1, which included cancer patients. However, participants of group 1 passionately described how they suffered from discrimination in the community when people found out that the participants had cancer. One of the cancer patients said that if his employer discovered that he had cancer, he might lose his job. He

added that nobody wants to be around a cancer patient because of the belief that cancer is a contagious disease. Another patient said she did not tell her morning Tai Chi group that she had cancer mainly because the group once discussed that cancer was incurable and that people who were diagnosed with cancer should just die quietly.

When asked about what might have caused cancer, group 1 and group 2 had different responses. Group 1 tended to believe more in fate and that cancer was not preventable. Some also talked about how stressful lives might have contributed to their cancer diagnoses. Group 2 felt that cancer might have been caused by risky behaviors and bad health habits. One person jokingly said since nobody knew what caused cancer, it could be just some crime the person committed in their last life. These stigmas and negative beliefs in the Chinese immigrant community obviously made lives very difficult for patients diagnosed with the disease.

After conducting the focus groups, we analyzed the discussion and structured a quantitative instrument. Many cancer patients in group 1 provided examples of how others in the community believed that cancer was contagious and how they had been stigmatized. Therefore, we structured a question to assess if cancer was indeed considered a contagious disease. We also wanted to assess what variables predicted this belief. Based on the focus group discussions, variables that caused cancer were also included to determine if cancer was considered to be preventable, and if so, were screening tests utilized by the community. Because the Chinese translation of the word "contagious" is the same as the word "infectious," we asked the interviewers to use tuberculosis as an example if a respondent asked what contagious meant. A telephone survey was utilized to include a large sample of the community.

To include an accurate Chinese sample in this study, surnames were used to identify potential participants. Using surnames as a sampling strategy was appropriate in our study to identify country of origin of our subjects since the surname is passed on from generation to generation. The ethnic surname sampling method has been found to be a reliable and cost-effective approach that yields valid samples of ethnic groups.^{18,20} This method is especially appropriate for immigrant studies because most recent immigrants maintain their original surnames. The strengths of the telephone survey were its cost effectiveness and its nonintrusive approach, while the weaknesses included the difficulty of inclusiveness.¹⁸

The 10 most common Chinese surnames identified in the 1999 San Francisco residential telephone book²¹ were Wong, Chen, Chan, Wang, Wu, Chin, Huang, Liu, Li, and Ng. Research subjects with these

surnames were then randomly selected and assigned a corresponding number. Both the number and surname were entered on a master list. The subjects were then randomly selected from the master list by the researcher using a random digit number table.

Subject Selection

The three screening criteria for inclusion in the study were age 18 years or older, self-identified as Chinese, and a resident at the telephone number called. When a minor answered the telephone, the surveyor asked if there was an adult available in the household to answer the questionnaire. Although Chinese residents in San Francisco who did not have a telephone may be systematically excluded from this study, the telephone is a common household product, and most Chinese residents in San Francisco have registered numbers. The problems encountered by the selection method of using common last Chinese surnames were numerous: (1) some potential subjects included in this initial master list were not Chinese by ethnicity (such as those with the last name Lee, which could also be a Korean surname), (2) residents who changed their last name due to marriage or other reasons may not be included, (3) residents who had uncommon Chinese last names were excluded, and (4) residents who elected to exclude themselves from the local telephone book were not contacted.

Although the selection method had its faults, the important goal of gathering data in this underserved community outweighed the methodological faults and therefore funding was obtained to conduct the study.

Level of Acculturation

Besides demographic variables such as age, gender, education, and income, seven other variables were also included that assessed the cultural background of the subject. These variables included birthplace (China, Hong Kong, Taiwan, United States, Vietnam, or Other), length of stay in the United States (number of years), primary language spoken at home, preferred language used in reading materials and preferred language used at social gatherings (Cantonese, Mandarin, Taiwanese, Vietnamese, English, or Other) and US citizenship (yes or no). We assumed that the length of stay in the United States and fluency with the English language would affect the subjects' beliefs towards cancer. This was by no means a comprehensive measure of acculturation but rather an attempt to try to determine how these variables may relate to an individual's cultural background and his or her beliefs toward a cancer

diagnosis. Several correlation matrices were generated to assess the acculturation variable relationships between the six variables relating to culture and identify cases of multicollinearity.

The next steps of analysis were to further understand what factors in this sample predict the belief that cancer was contagious and to test the hypothesis between acculturation, other sociodemographic factors, and cancer beliefs (is cancer contagious? yes or no). Logistic regression was commonly used for the prediction of a discrete or dichotomous criterion measure; therefore, a two-step hierarchical logistical regression model was computed to test the hypothesized relationship. This method was used to isolate the unique contribution of acculturation after controlling for relevant demographics. Sociodemographic variables included age, gender, and income. Acculturation variables included birthplace, length of stay in the United States, primary language spoken at home, preferred language used in reading materials, and preferred language used in social gathering. For categorical variables, dummy variables were created to make comparisons.

Outcome Measure

The main outcome measure of cancer beliefs was a bivariate answer to the question "Do you think cancer is contagious?" This was a direct measure of a biased belief toward cancer and cancer patients. Other measures of cancer beliefs included causes of cancer. Subjects were asked what they thought caused cancer. Established responses were provided to the subjects for a yes or no answer. The responses included diet, immoral behavior, lifestyle risk factors (such as smoking and drinking), punishment as a result of ancestor's conduct (this concept was common among Chinese who believed in intergenerational interdependence and karma; descendants would suffer from their ancestor's immoral acts by having bad luck or incurable diseases), polluted environment, high-tech environment, and genetics. These answers were structured so beliefs towards personal responsibility could be assessed. Responses pointing to personal responsibilities included diet, immoral behavior, and lifestyle risk factors. Factors that shifted responsibilities to those not controlled by an individual or his or her behaviors included a result of ancestor's conduct, polluted environment, high-tech environment, and genetics.

Results

Of the 2,500 telephone calls made, 829 respondents met the selection criteria. Due to missing data on the

outcome variable, 31 surveys were dropped from the analysis, leaving a final sample of 798 respondents. Although calls were made at different times of the day, subjects contacted between the hours of 8 AM and 4 PM were more likely to participate in the study. This could be explained by the fact that Chinese who stayed home during the day were mostly retired non-English-speaking seniors. They were also more isolated from the mainstream community and more willing to engage in a telephone conversation that was conducted in their own language. The data thus reflect an older, predominantly low-income, Cantonese-speaking, foreign-born sample (Table 1).

Correlations Among Acculturation Variables

Table 2 shows that the maximum correlation was between citizenship and length of stay. This result was logical because immigrants who had a green

Table 1. — Sociodemographic, Self-Rated Health, and Healthcare Coverage Information (n = 798)

Variables	%	Mean	SD
Age (yrs)		54	19.5
Education (yrs)		11	9.3
Length of stay in United States (yrs)		17.5	13.3
Annual household income (US \$):			
<10,000	61		
10,000 - 19,999	18		
20,000 - 29,999	9		
≥30,000	12		
Birthplace:			
China	74		
Hong Kong	13		
United States	5		
Taiwan	0		
Vietnam	0		
Other	8		
Sex:			
Male	41		
Female	59		
Language spoken at home:			
Cantonese	83		
Mandarin	6		
English	4		
Taiwanese	0		
Vietnamese	0		
Other	7		
Self-rated health:			
Excellent	20		
Good	41		
Fair	31		
Poor	8		
Health insurance coverage:			
Medi-Cal	7		
Medicare	7		
Both Medi-Cal and Medicare	30		
Private health insurance (HMO)	45		
Private health insurance (non-HMO)	5		
No coverage	6		

Table 2. — Correlations Between Variables Measuring Cultural Background

	1	2	3	4	5	6
Birthplace	—					
Length of stay	.16*	—				
Language (home)	.14*	.17*	—			
Language (media)	.16*	.10*	.04	—		
Social gathering	.09*	.01	.05	-.03	—	
Citizenship	-.11*	-.47*	.01	-.12*	-.01	—

P < .05

card would have to stay anywhere from 3 to 5 years in the United States before they could apply for citizenship. Therefore, we dropped the citizenship variable in our next level of analysis. Otherwise, correlations of the other variables indicated each one measures culture differently and none of these variables were duplicating the other.

Cancer Beliefs

Of the 798 respondents, 25.7% answered yes to believing cancer was contagious. Table 3 presents the percentages of yes answers to the seven responses assessing the subject's perceived cause of cancer. Polluted environment, diet, and genetics were more likely to be considered as causes of cancer than other variables such as immoral behavior and punishment as a result of ancestor's conduct.

Results of the logistical regression indicated that the data only partially support the hypothesis: only length of stay with the construct acculturation was statistically significant in predicting cancer as contagious. Among all the demographic variables, only gender and income were found to be statistically significant in predicting the belief that cancer is contagious. Compared to men, women were more likely to think that cancer is contagious ($B = 0.446, P < .02$). The longer the length of stay in the United States, the more likely the respondent believed that cancer is contagious ($B = .029, P < .0006$). The higher the

Table 3. — "Yes" Responses to Questions Assessing the Causes of Cancer

Variable	%	No. of Responses
Diet	23.6	766
Immoral behavior	6.3	766
Lifestyle risk factors	18.6	765
Punishment as a result of ancestor's conduct	9.0	766
Polluted environment	26.0	765
High-tech environment	15.4	764
Genetics	22.2	765

income, the less likely he or she would believe cancer is contagious ($B = -0.24, P < .015$).

Discussion

Our findings indicate that more studies are needed to examine cancer beliefs among Asian American and Pacific Islander communities, with a specific emphasis on the poor and underserved. This study attempted to understand the variables that serve as potential barriers to early intervention and detection of cancer among Chinese Americans. In particular, levels of acculturation were hypothesized to affect and influence beliefs regarding cancer.

A number of important conclusions regarding acculturation and beliefs about cancer can be drawn as a result of this study. While we identified several variables as being reflective of acculturation, the data only partially supported the primary hypothesis. Still, of particular interest was the fact that income was positively correlated to a decrease in the belief that cancer was contagious. It is suspected that income, education, gender, and socialization may be dynamically related. The study revealed that the population most likely to believe that cancer is contagious consisted of women of low socioeconomic status living in the United States for an extended period. The greatest success in the recruitment of subjects came during the daytime hours, probably because these subjects were home and thus not involved in the local community or perhaps involved only with people of similar cultural backgrounds and viewpoints. The lack of exposure to educational materials or information may contribute to long-held beliefs and attitudes regarding cancer. The length of time spent in the United States without exposure to other acculturation variables may solidify long-held beliefs. It appears that this represents a gap group that has not had access to the wealth of information about cancer and its various treatments and potential positive prognosis.

Although we tried to differentiate the word “contagious” from “infectious,” the translated Chinese character for “contagious” is actually the same as “infectious.” Certain cancers that are prevalent among Asian American and Pacific Islander communities, such as human papilloma virus and cervical cancer, hepatitis B and liver cancer, are indeed infectious. It is unclear in our study if the respondents understand the possible infectious status of some cancers and thus respond that they think cancer is contagious, or if they have similar notions that all cancers are contagious, similar to tuberculosis. With the scare of severe acute respiratory syndrome (SARS) in recent months in Asian countries, it is

important for cancer providers to educate the community about how some cancer may be infectious and yet many other cancers are not.

More research is warranted to assess whether the Chinese immigrant community believes that all cancers are contagious, and this belief will cause great pains to cancer survivors. In light of this negative belief, it is difficult to consider a lack of early detection and intervention an actual barrier. It seems unrealistic to ask someone who believes that cancer as an incurable and contagious disease to voluntarily seek the diagnosis. This study revealed the need to challenge this belief system.

Service providers must be creative in the conceptualization and application of intervention strategies targeting this population. Cancer can no longer be a topic limited to the doctor's office. Churches, schools, and factories may serve as ideal environments to reach this invisible group. A concerted effort must be made to access groups and pockets of people who may be isolated and have limited exposure to health materials. For this reason, a media campaign that utilizes print as well as television and radio to demystify cancer may be the first step. It is important that people feel comfortable talking about cancer. To increase comfort, a credible spokesperson with high status in the community could be enlisted to “spread the word” about his or her own treatment and cancer survival. Again, television, radio, and local newspapers may offer a point of entry.

Conclusions

By dispelling some of the beliefs that abound regarding cancer, its treatment, and prognosis and by increasing healthy dialogue, we may improve the likelihood of regular screening and thus early cancer detection. There is much research yet to be done with Chinese Americans and their beliefs regarding cancer. Still, it is clear that early detection and treatment are the best defenses against cancer regardless of one's ethnic background.

References

1. Kagawa-Singer M, Puorat N. Asian American and Pacific Islander breast and cervical carcinoma screening rates and healthy people 2000 objectives. *Cancer*. 2000;89:696-705.
2. Deapen D, Liu L, Perkins C, et al. Rapidly rising breast cancer incidence rates among Asian-American women. *Int J Cancer*. 2002; 99:747-750.
3. Haynes MA, Smedley BD, eds. *The Unequal Burden of Cancer: An Assessment of NIH Research and Programs for Ethnic Minorities and the Medically Underserved*. Committee on Cancer Research Among Minorities and the Medically Underserved, Health Sciences Policy Program, Health Sciences Section, Institute of Medicine. Washington, DC: National Academies Press; 1999.
4. Ito KL, Chung RC, Kagawa-Singer M. Asian/Pacific American women and cultural diversity: studies of the traumas of cancer and

war. In: Ruzek SB, Olesen VL, Clarke AE, eds. *Women's Health: Complexities and Differences*. Columbus, Ohio: Ohio State University Press; 1997.

5. Sarna L, Tae YS, Kim YH, et al. Cancer screening among Korean Americans. *Cancer Pract*. 2001;9:134-140.

6. McPhee SJ, Stewart S, Brock KC, et al. Factors associated with breast and cervical cancer screening practices among Vietnamese American women. *Cancer Detect Prevent*. 1997;21:510-521.

7. Bird JA, McPhee SJ, Ha NT, et al. Opening pathways to cancer screening for Vietnamese-American women: lay health workers hold a key. *Prev Med*. 1998;27:821-829.

8. Mo B. Modesty, sexuality, and breast health in Chinese-American women. *West J Med*. 1992;157:260-264.

9. McPhee SJ, Bird JA, Davis T, et al. Barriers to breast and cervical screening among Vietnamese-American women. *Am J Prev Med*. 1997;13:205-213.

10. Yu ES, Kim KK, Chen EH, et al. Breast and cervical cancer screening among Chinese American women. *Cancer Pract*. 2001; 9: 81-91.

11. Pham CT, McPhee SJ. Knowledge, attitudes, and practices of breast cancer and cervical cancer screening among Vietnamese women. *J Cancer Educ*. 1992;7:305-310.

12. *A Profile: Cervical Cancer and Asian American Women*. San Francisco, Calif: National Asian Women's Health Organization; 2000.

13. Kim K, Yu ES, Chen EH, et al. Colorectal cancer screening: knowledge and practices among Korean Americans. *Cancer Pract*. 1998;6:167-175.

14. Yi JK. Acculturation, access to care and use of preventive health services by Vietnamese women. *Asian Am Pac Isl J Health*. 1995;3:30-41.

15. Juon HS, Choi Y, Kim MT. Cancer screening behaviors among Korean-American women. *Cancer Detect Prevent*. 2000;24:589-601.

16. Maxwell AE, Bastani R, Warda US. Demographic predictors of cancer screening among Filipino and Korean immigrants in the United States. *Am J Prev Med*. 2000;18:62-68.

17. Freeman HP. *Voices of a Broken System: Real People, Real Problems*. President's Cancer Panel, Report of the Chairman, 2000-2001. Bethesda, Md: National Cancer Institute, National Institute of Health; March 2002.

18. Choi BC, Hanley AJ, Holowaty EJ, et al. Use of surnames to identify individuals of Chinese ancestry. *Am J Epidemiol*. 1993;138: 723-734.

19. Rosenwaike I. Surname analysis as a means of estimating minority elderly. *Res Aging*. 1994;16:212-227.

20. Sasao T. Using surname-based telephone survey methodology in Asian-American communities: practical issues and caveats. *J Community Psychol*. 1994;22:283-295.

21. Flanagan AY. Using ethnic surnames for sampling in research. *E-mail Newsletter*. May 2000. emailnewsletter@yahoo.com.