

Cancer Information Seeking Preferences and Experiences: Disparities Between Asian Americans and Whites in the Health Information National Trends Survey (HINTS)

GIANG T. NGUYEN

Department of Family Medicine and Community Health, Center of Excellence in Cancer Communication Research, Center for Clinical Epidemiology and Biostatistics, University of Pennsylvania, Philadelphia, Pennsylvania, USA

SCARLETT L. BELLAMY

Center for Clinical Epidemiology and Biostatistics, University of Pennsylvania, Philadelphia, Pennsylvania, USA

Little is known about cancer information needs and seeking patterns in the rapidly growing Asian American population. The purpose of this study is to characterize cancer information seeking behaviors and preferences in Asian Americans and to examine their cancer-related knowledge and risk perceptions. Data from the nationally representative Health Information National Trends Survey (HINTS) database were analyzed to compare non-Hispanic Asians and Whites. Asians had lower awareness of the National Institutes of Health and American Cancer Society, were less likely to think that not smoking or quitting smoking would reduce cancer risk, were less knowledgeable about colon cancer screening, and considered their personal cancer risk to be low. Asians and Whites had similar media usage rates. They also had similar rates of preference for cancer information from

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Address correspondence to Giang T. Nguyen, Department of Family Medicine and Community Health, University of Pennsylvania, 3400 Spruce St., 2 Gates/HUP, Philadelphia, PA 19104, USA. E-mail: nguyeng@uphs.upenn.edu

various sources, although Asians were significantly more likely to prefer print materials. The level of trust of cancer information from doctors was high overall. This study is limited by under-representation of some demographic subpopulations, future surveys should oversample Asians and strive to include higher-risk Asians (e.g., elderly, poorly educated, immigrants, and those with limited English proficiency).

More than 10.2 million Asian Americans live in the United States, constituting 3.6% of the population and comprising persons of Asian descent born in the United States as well as immigrants from a variety of Asian countries. Between 1990 and 2000, the Asian American population grew by 48%, a rate that is more than three times faster than the general population (Barnes & Bennett, 2002).

Asian Americans often are considered “model minorities” with exemplary behavior and few health risks (Chen & Hawks, 1995; Conchas & Perez, 2003). They are indeed at risk for a number of important health conditions, however, including cancer (Kwon & Bae, 1995; Jemal et al., 2004; Ward et al., 2004).

Cancer is a leading cause of death for Asian Americans (Louie, 2001), with the most common cancers causing death being lung, colon, and liver for men (39.2, 15.9, and 14.9 per 100,000) and lung, breast, and colon for women (19.9, 12.8, and 9.5 per 100,000; U.S. Cancer Statistics Working Group, 2004). Meanwhile, screening rates are low; compared with Whites, Blacks, and Latinas, Asian women receive less mammography and pap screening (57% and 68%; Ward et al., 2004). A study of 1,011 Vietnamese in California found significantly lower rectal, cervical, and breast cancer screening than in the general population (McPhee et al., 1992). Chinese Americans in primary care also have demonstrated low colon screening (69% fecal occult blood testing (FOBT), 20% sigmoidoscopy; Lee et al., 1999).

Knowledge of the consequences of behaviors plays an important role in many health behavior theories, including the Theory of Reasoned Action (Fishbein & Ajzen, 1975), the Health Belief Model (Rosenstock, 1990), and Social Cognitive Theory (Bandura, 1992). Studies suggest that cancer knowledge is low for Asians. A small Philadelphia study showed that few Southeast Asian women were able to identify cancer risk factors or prevention strategies (Phipps et al., 1999), and a small California study indicated that Japanese women had insufficient knowledge about breast cancer (Sadler et al., 2003). In Seattle, fewer than half of Chinese Americans knew that hepatitis B could cause liver cancer (Thompson et al., 2002).

Little is known about how Asian Americans obtain cancer knowledge because few studies have examined cancer-related information sources, information-seeking behaviors, and information preferences in Asians. A greater understanding of cancer communication issues in this population can lead to improved interventions; however, no population-based national studies on cancer information seeking in Asian Americans have been published to date.

This study addresses several specific questions: How do Asian Americans differ from White Americans with respect to cancer-related information seeking? Which health information channels may be useful for cancer awareness campaigns targeting Asian Americans? What cancer topics should be emphasized in public information campaigns for the population?

Methods

We used data from the HINTS 2003, a nationally representative telephone survey of U.S. adults conducted by the National Cancer Institute (NCI) in 2002–2003. The survey was conducted in English and Spanish, with a population-based sample of 6,369 adults. We included records for non-Hispanic Asians and non-Hispanic Whites (hereafter referred to as Asians and Whites) in our analysis ($n = 4,395$; 119 Asians and 4,276 Whites). A complete description of the sampling and design of HINTS has been published elsewhere (Nelson et al., 2004).

In addition to race–ethnicity, we included the following demographic variables: age, sex, household income, self-reported health, health insurance status, education, employment status, and whether the respondent had a usual health care provider. These variables are hereafter referred to as “background characteristics.” We used these variables for statistical adjustment, since the demographics of the Asian and White population in the United States are quite different (U.S. Census Bureau, 2001). Moreover, these characteristics potentially can affect access to health information.

We included measures of exposure to mass media, information-seeking behavior, attention to health information, and trust of cancer information from various sources. In addition, we examined responses to an item where participants were asked whether they would like to receive free cancer information from 9 potential sources (e-mail/internet; videos; audio cassettes; personalized reading materials based on lifestyle/family history; interactive CD-ROM’s; telephone call from a health care professional; meeting in person with a health care professional; printed publications; or some other way). We also included responses to a question in which participants were asked to imagine having a strong need for cancer information and then to identify the one source where they would look first to obtain that information; participants chose from a list of 15 options (books; brochures/pamphlets/etc.; family; friend/co-worker; health care provider; Internet; library; magazines; newspapers; radio; phone information number; cancer organizations; television; cancer research/treatment facilities; other). For subjects who had ever looked for cancer information from any source, we also included responses to a question where participants identified the first place they actually went during their most recent information search.

Finally, we examined measures of cancer-related knowledge (colon cancer prevention/screening methods, role of tobacco in cancer, awareness of cancer organizations such as NCI and American Cancer Society), personal smoking behaviors, and cancer risk perception. While the HINTS also included data for other cancers, we limited our analysis to questions related to lung and colon cancer, because these cancers are among the top three malignancies for Asians and Whites of both sexes in the United States (U.S. Cancer Statistics Working Group, 2004).

Data were analyzed using Stata (StataCorp, 2003). Our calculations used appropriate survey sampling weights and stratification adjustments (Davis & Moser, 2004; Davis, Personal Communication, 2005). The significance level was set at 0.05. Survey chi-square tests and design-based F tests were used for univariate comparisons. Multivariable linear regression and logistic regression were used to assess between-group differences, controlling for the background characteristics described earlier. We did not exclude the few people with a history of cancer because this variable did not change our findings when we included it in the multivariable models. When analyzing responses concerning awareness of the various cancer organizations, we

adjusted not only for the background characteristics but also for reported awareness of a fictional entity (“U.S. Center for Cancer Prevention Research”) that had been included in the HINTS for quality control purposes.

Results

The weighted mean age for Asians was 36.5 years, significantly younger than Whites (49.9). Males constituted 57.4% (Asian) and 47.3% (White; $p > 0.05$). *F* tests found no significant differences between races with respect to income, self-reported health, and health insurance status, but there were few Asians with low income. Asians were more likely than Whites to be students (as opposed to other employment types) and to have higher education.

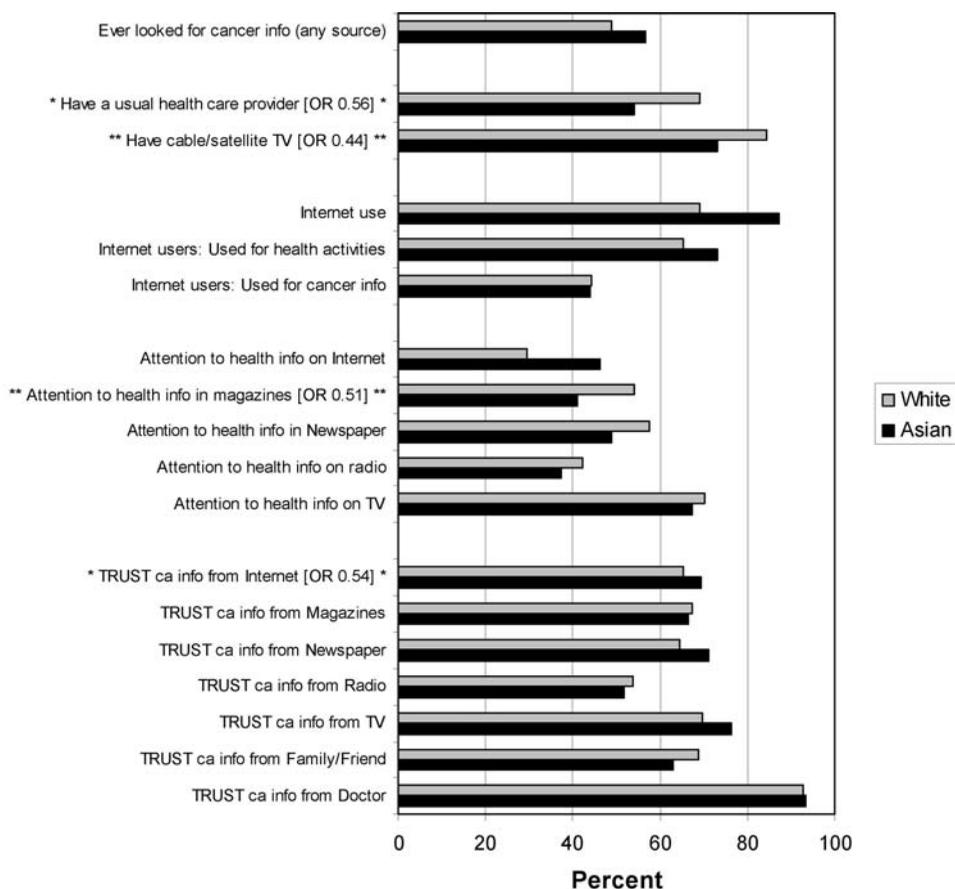
Figures 1 and 2 summarize our primary findings. Multivariable linear regression showed no significant differences in television use (2.4 and 3.0 hrs/day for Asians and Whites, respectively), radio use (1.8 and 2.3 hrs/day), newspaper use (3.5 and 3.7 days/wk), and magazine use (1.7 and 1.9 days/wk). When asked about preference for nine potential sources of free cancer information, Asians and Whites had the same top three choices, in different rank orders (printed publications, personalized materials, and in-person sessions); Asians were more likely than Whites to choose printed publications (90.6% vs 78.1%; $p < 0.01$). When participants were asked to select the cancer information source where they would look first in a time of need, the top two choices for both Asians and Whites were Internet (52.9% and 36.7%, respectively) and health care provider (33.2% and 47.0%; $p > 0.05$). For subjects who actually had looked for cancer information, the Internet remained popular (Asians 57.8%, Whites 50.5%), but fewer reported going to a doctor; though not statistically significant, fewer Asians reported using a health care provider as the primary source (0.9% vs 11.2%; $p = 0.09$).

Discussion

This is the first report combining cancer communication behaviors, preferences, and cancer knowledge of Asian Americans in a nationwide study. As noted above, we identified several disparities between Asians and Whites, and these were independent of the effects due to age, sex, income, self-reported health, health insurance, education, employment, and health provider status.

Many of our findings are in agreement with other reports. For example, in a study of 1,374 Asian Americans, Ma and Fleisher (2003) also found that few (21%) were aware of the 1-800-4-CANCER service. In addition, we found smoking rates of 10.2% (Asian) and 21.9% (White), which were consistent with the Current Population Survey Tobacco Use Supplements' rates of 12.7% and 22.7% (Baluja et al., 2003). We found that Asians had a low sense of personal cancer risk; this may suggest a belief in Asians as the “model minority” (Chen & Hawks, 1995), or it may be a reflection of the fact that rates of colon cancer and many other cancers are indeed lower among Asians than among Whites (U.S. Cancer Statistics Working Group, 2004). Since Asians actually are at higher risk than others for some cancers, though, this may impart a false sense of security.

Our findings regarding knowledge of tobacco avoidance and its relationship with cancer prevention differed from studies in Philadelphia, where a higher proportion of Asians (81.3% to 93.3%) knew about the association between smoking



* Statistically significant at 0.05 level.

** Statistically significant at 0.01 level.

Abbreviations: "ca" = cancer; "info" = information.

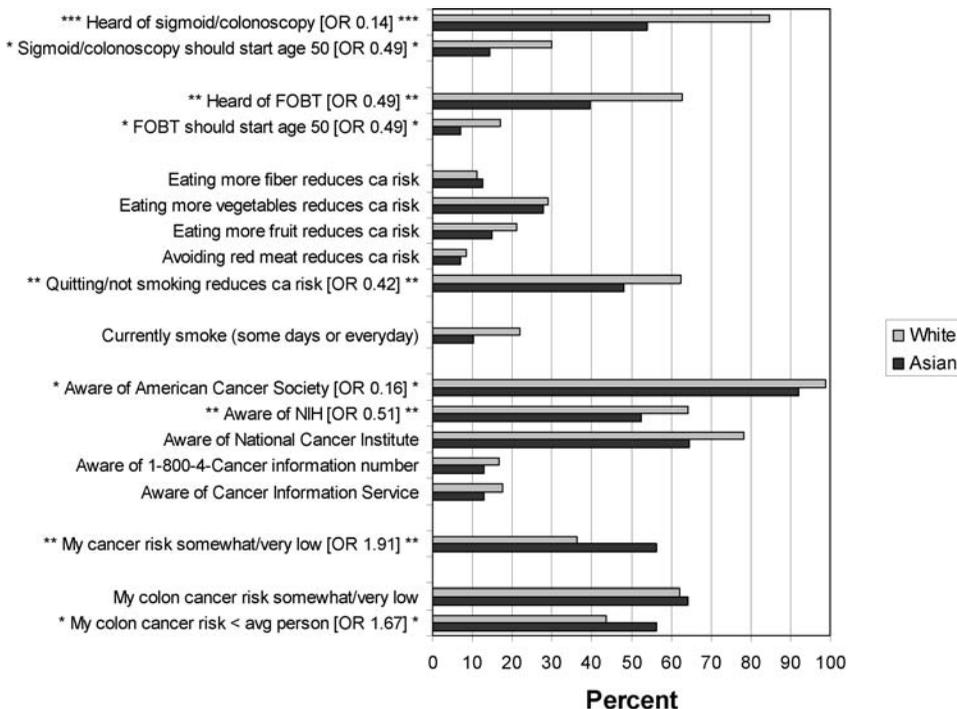
OR is the odds ratio (Asian versus White), using a survey weighted logit model, adjusting for age, sex, income, employment status, self-reported health status, health insurance status, educational attainment, and usual health provider status. When health provider status was the dependent variable, this item was removed from the list of independent variables in the logit model.

† Calculations also were performed controlling for whether the subject had ever been diagnosed with cancer, but no substantive changes were noted in the findings (results not shown).

Figure 1. Information seeking experiences/sources and attention to/trust of cancer information sources.

and lung cancer (Ma et al., 2002, 2003). The lower rates identified in our study remained significant after controlling for smoking status ($p < 0.01$), and this should be investigated further.

There are few references with which to compare our findings concerning information preferences. One small study of cancer patients in Hawaii showed that, while White patients preferred information from research sources, telephone services, and the Internet, Japanese patients preferred television, newspapers, books, magazines, and alternative medicine providers. Meanwhile, non-Japanese Asians and Pacific



* Statistically significant at 0.05 level.
 ** Statistically significant at 0.01 level.
 *** Statistically significant at 0.001 level.
 Abbreviations: "avg person" = average person of the same age and sex; "ca" = cancer; "FOBT" = fecal occult blood test/stool blood test; "NIH" = National Institutes of Health; "<" = is less than.
 OR is the odds ratio (Asian versus White), using a survey weighted logit model, adjusting for age, sex, income, employment status, self-reported health status, health insurance status, educational attainment, and usual health provider status.
 † Calculations also were performed controlling for whether the subject ever had been diagnosed with cancer, but no substantive changes were noted in the findings (results not shown).
 ‡ Questions about awareness of cancer organizations (ACS, NIH, etc.) were also adjusted for responses regarding awareness of a fictional entity, the US Center for Cancer Prevention Research (responses to this item did not differ significantly between Asians (18.9%) and Whites (30.3%), $p > 0.05$).

Figure 2. Knowledge of cancer/cancer information sources and personal cancer risk perception.

Islanders preferred information from interpersonal sources (Kakai et al., 2003). Our results did not identify such striking differences, but they did suggest an Asian preference for printed materials.

This study is limited by the fact that Asians were not oversampled. The 119 Asians constituted only 2.3% of the full sample, lower than the 3.6% in the U.S. population. Also, the Asian weighted mean age was more than 10 years younger than Whites. This is larger than the difference seen in the census, where Asians' median age was just 3 years younger than the general population (Barnes & Bennett, 2002). Asians with low education and low income are poorly represented in the HINTS; since those with low education tend to have lower cancer knowledge

(Taylor et al., 2002), it is likely that we are underestimating the true disparities. Also, the HINTS was offered in English and Spanish only, so Asians with limited proficiency in these languages are poorly represented. In addition, it would have been useful to know about immigration status, English proficiency, and Asian ethnicity (Chinese, Vietnamese, etc.). Several researchers have noted the limitations of relying on aggregated data when describing the health of this diverse group (Baluja et al., 2003; Ghosh, 2003; Jemal et al., 2004).

Finally, we recognize that some of the statistically significant findings cited here may be the result of multiple comparisons. With an alpha level of 0.05, one might estimate that 5% of the significant findings may be spurious. Most of the significant findings, however, fell into recognizable patterns and thus are less likely to be statistical artifacts. Moreover, our level of confidence in many cases was higher, with many p values < 0.01 .

Conclusion

Despite many similarities in media exposure, information preferences, and information seeking, Asian Americans had lower knowledge than Whites with respect to colon cancer screening and smoking; these topics should be stressed in cancer awareness campaigns. Useful channels for intervention may include print materials and health care providers (although efforts are needed to reduce barriers to regular preventive health care for Asians).

Future studies should oversample Asians, as is currently done for other minorities, and offer surveys in other languages in order to reach more linguistically isolated groups. Also, Asian subgroups should be disaggregated to identify disparities that may otherwise be masked. The role of interpersonal communication, which was not investigated in depth in HINTS, also should be explored. Findings from this and similar studies can provide a basis for future communication interventions to address cancer disparities faced by the growing Asian American population.

References

- Baluja, K. F., Park, J., et al. (2003). Inclusion of immigrant status in smoking prevalence statistics [see comment]. *American Journal of Public Health*, 93(4), 642–646.
- Bandura, A. (1992). A social cognitive approach to the exercise of control over AIDS infection. In R. J. DiClemente (Ed.), *Adolescents and AIDS: A generation in jeopardy* (pp. 89–116). Newbury Park: Sage.
- Barnes, J. S. & Bennett, C. E. (2002). The Asian population: 2000. *Census 2000 Briefs*, US Department of Commerce, Economics and Statistics Administration, US Census Bureau: 1–10.
- Chen, M. S. Jr., & Hawks, B. L. (1995). A debunking of the myth of healthy Asian Americans and Pacific Islanders. *American Journal of Health Promotion*, 9(4), 261–268.
- Conchas, G. Q. & Perez, C. C. (2003). Surfing the “model minority” wave of success: How the school context shapes distinct experiences among Vietnamese youth. *New Directions for Youth Development*, 100, 41–56.
- Davis, W. & Moser, R. P. (2004). HINTS: Discussion of statistical weights and their use. Retrieved January 2, 2005, from http://cancercontrol.cancer.gov/hints/hints_docs/using-survey-weights.pdf
- Fishbein, M. & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*, Reading, MA: Addison-Wesley.
- Ghosh, C. (2003). Healthy people 2010 and Asian Americans/Pacific Islanders: Defining a baseline of information. *Am J Public Health*, 93(12), 2093–2098.

- Jemal, A., Clegg, L. X., et al. (2004). Annual report to the nation on the status of cancer, 1975–2001, with a special feature regarding survival. *Cancer*, 101(1), 3–27.
- Kakai, H., Maskarinec, G., et al. (2003). Ethnic differences in choices of health information by cancer patients using complementary and alternative medicine: An exploratory study with correspondence analysis. *Social Science & Medicine*, 56(4), 851–862.
- Kwon, I. W. & Bae, M. (1995). Health status of Asian Pacific Americans in Missouri. *Missouri Medicine*, 92(10), 648–652.
- Lee, M. M., Lee, F., et al. (1999). Cancer screening practices among primary care physicians serving Chinese Americans in San Francisco. *Western Journal of Medicine*, 170(3), 148–155.
- Louie, K. B. (2001). White paper on the health status of Asian Americans and Pacific Islanders and recommendations for research. *Nurs Outlook*, 49(4), 173–178.
- Ma, G. X., Fang, C. Y., et al. (2003). Perceptions of risks of smoking among Asian Americans. *Preventive Medicine*, 37(4), 349–355.
- Ma, G. X. & Fleisher, L. (2003). Awareness of cancer information among Asian Americans. *Journal of Community Health*, 28(2), 115–130.
- Ma, G. X., Tan, Y., et al. (2002). Perceived risks of certain types of cancer and heart disease among Asian American smokers and non-smokers. *Journal of Community Health*, 27(4), 233–246.
- McPhee, S., Jenkins, C., et al. (1992). Behavioral risk factor survey of Vietnamese–California, 1991. *MMWR—Morbidity & Mortality Weekly Report*, 41(5), 69–72.
- Nelson, D. E., Kreps, G. L., et al. (2004). The Health Information National Trends Survey (HINTS): Development, design, and dissemination. *Journal of Health Communication*, 9(5), 443–460.
- Phipps, E., Cohen, M. H., et al. (1999). A pilot study of cancer knowledge and screening behaviors of Vietnamese and Cambodian women. *Health Care for Women International*, 20(2), 195–207.
- Rosenstock, I. M. (1990). The health belief model: Explaining health behavior through expectancies. In K. Glanz, F. M. Lewis, et al. (Eds.), *Health behavior and health education: Theory, research, and practice* (pp. 39–62). San Francisco: Jossey-Bass Publishers.
- Sadler, G. R., Takahashi, M., et al. (2003). Japanese American women: Behaviors and attitudes toward breast cancer education and screening. *Health Care for Women International*, 24(1), 18–26.
- StataCorp. (2003). *Stata statistical software* (Release 8) [Computer Software]. College Station, TX: StataCorp LP.
- Taylor, V. M., Jackson, J. C., et al. (2002). Hepatitis B knowledge and practices among Cambodian American women in Seattle, Washington. *Journal of Community Health*, 27(3), 151–163.
- Thompson, M. J., Taylor, V. M., et al. (2002). Hepatitis B knowledge and practices among Chinese American women in Seattle, Washington. *Journal of Cancer Education*, 17(4), 222–226.
- U.S. Cancer Statistics Working Group. (2004). *United States Cancer Statistics: 2001 Incidence and Mortality*. Atlanta, GA: Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute.
- U.S. Census Bureau. (2001). *Population profile of the United States: 2000*. Retrieved March 29, 2003, from <http://www.census.gov/population/pop-profile/2000/profile2000.pdf>
- Ward, E., Jemal, A., et al. (2004). Cancer disparities by race/ethnicity and socioeconomic status [see comment]. *Ca: A Cancer Journal for Clinicians*, 54(2), 78–93.

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