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Association Between Cancer Risk Perception and Screening Behavior Among Diverse Women

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Abstract

Background—We measured the perception of breast, cervical, and colon cancer risks and screening in diverse women to examine the association between risk perception and screening behavior.

Methods—Cross-sectional telephone and in-person interviews of women aged 50 to 80 years were conducted in English, Spanish, or Chinese. The women were recruited from primary care practices in San Francisco, California (academic general internal medicine, family medicine, women's health practices, a community-based clinic in Chinatown, and the Community Health Network Clinics, which is affiliated with the San Francisco Department of Public Health), with at least 1 visit within the previous 2 years. Perceived personal risk for each cancer was measured on a word scale (no risk to very high risk) and compared with self-reported screening behavior by ethnicity.

Results—A total of 1160 women participated: 338 (29%) were White, 167 (14%) were African American, 239 (21%) were Latina, and 416 (36%) were Asian. The average participant was 61

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years old and a high school graduate; 18% had a personal history of cancer, and 42% had a family history of cancer. The perceived lifetime risk of cancer varied by ethnicity. Compared with White women, Latinas had a higher perceived risk for cervical cancer (odds ratio [OR], 2.9; 95% confidence interval [CI], 1.8–4.6) and colon cancer (OR, 3.0; 95% CI, 1.8–5.0) after multivariate adjustment, and Asians had a lower perceived risk for cervical cancer (OR, 0.6; 95% CI, 0.4–0.9) and colon cancer (OR, 0.6; 95% CI, 0.3–0.9). Higher colon cancer risk perception was associated with having undergone colonoscopy within 10 years (OR, 2.8; 95% CI, 1.4–5.4).

Conclusions—Risk perception was significantly associated with colon cancer screening behavior (P = .001). Evaluation of patients' perceived risk of cancer may be useful to clinicians who are recommending screening tests.

Disparities in cancer incidence and mortality vary by race and ethnicity among women, with African Americans having the highest incidence of colon cancer and the highest death rate from breast and cervical cancer.[1] Latina women have high incidence and mortality rates of cervical cancer but lower rates of colon and breast cancer.[1] In general, ethnicminorities have lower rates of cancer screenings, even though this gap has narrowed for mammography and Papanicolaou tests.[2–7] Lack of information about cancer, misunderstanding of risk factors or screening guidelines, and inaccurate perception of cancer risk may also affect screening behavior.[8,9] Communication of cancer risk to ethnically diverse populations of women has the potential to affect screening behavior. With increasing epidemiological information that quantifies the risks and benefits of early detection and prevention strategies, women's perceived risk for cancer may become a more important factor in the decision to undergo screening.[10] Previous studies suggest that access to cancer screening, patient-clinician communication, knowledge about cancer risk, attitudes, and understanding of medical terms are important issues in cancer prevention for minority women.[3,6,9,11–13]

Studies that examine the association of cancer risk perception and screening are limited. Beliefs about being susceptible to breast cancer were a barrier to mammography adherence among high-risk women in one study.[14] Another study reported that women identifying themselves as moderately susceptible were more likely to adhere to screening than women in the high susceptibility group or those who did not know their susceptibility.[15] Different studies also reported conflicting results about the effect of cancer fear on screening, where fear can be both a motivating[8,16] and a deterring factor,[17,18] but, to our knowledge, no studies have examined ethnic differences in risk perception or behavior. Information on the variation of cancer screening knowledge and risk perception in diverse populations has the potential to better educate clinicians and to develop a decision aid to assist patients and clinicians in their decision making about cancer prevention. The aim of this study was to evaluate the relationship between perception of cancer risk and screening history for breast, colon, and cervical cancers in a sample of diverse women from 4 ethnic groups.

METHODS

DESIGN, SETTING, AND PARTICIPANTS

This cross-sectional survey study was designed to examine how women from 4 racial and ethnic groups perceived risk from breast, cervical, and colon cancers. The women were

recruited between October 2003 and December 2005 from clinical sites in San Francisco, California. They were screened by telephone and invited for face-to-face interviews that lasted up to 90 minutes. The clinical sites for recruitment were 4 primary care practices (2 general internal medicine, 1 family medicine, and 1 women's health) at the University of California, San Francisco (UCSF), Medical Center; a community-based clinic in San Francisco's Chinatown; and the Community Health Network Clinics, which is affiliated with San Francisco General Hospital and the San Francisco Department of Public Health. Clinical sites were selected to increase the probability of recruiting non-White women.

Eligibility criteria for the study included (1) age 50 to 80 years; (2) ability to speak English, Spanish, Cantonese, or Mandarin; (3) self-identified ethnicity as White, Latina, African American, or Asian; and (4) having been seen by a clinician in a continuity practice setting, with at least 1 visit to the clinician in the previous 2 years. Women with current cancer or cognitive impairments were excluded.

STUDY PROCEDURES

We generated a list of all potentially eligible women based on administrative data. We then obtained permission from clinicians to contact their patients by mail to inform them about the project. Subsequently, personalized letters (in English, Spanish, or Chinese) were mailed to each patient informing her about the study and requesting that a collaboration card be returned with their interest in participation. Two weeks later, trained interviewers contacted the women by telephone to complete a 20-minute screening questionnaire. Our goal was to recruit approximately similar numbers of White, Latina, Asian, and African American women as well as a substantial number of participants with limited English proficiency.

After women who indicated that they no longer had the same clinician within the participating practice were excluded, those participating in the baseline telephone survey then were asked to participate in a face-to-face interview in the language of their choice. Appointments were made to conduct the interview at the UCSF research office, a clinical site, or at home. Women received $20 at the end of the interview. The study was approved by institutional review boards at UCSF, San Francisco General Hospital, and the Chinatown Clinic.

MEASURES AND OUTCOMES

The questionnaire included items that were derived from standard questions developed and used in previous surveys and from formative focus groups.[3] It was developed simultaneously in English, Spanish, and Chinese using bilingual experts and was pretested in each of the 4 ethnic groups. The telephone survey asked about age, years of education, household income, language use, health insurance (MediCal and/or Medicare, combinations, private, or uninsured), self-identified ethnicity, birthplace, personal and family history of cancer, type of cancer, and use of cancer screening tests within recommended intervals. Using a conceptual framework,[19] the interview focused on risk perception, the nature of the potential harm, the probability of harm, and factors that influence individual susceptibility. It included 8 items to evaluate a respondent's numeracy[20] as well as a single item on self-

reported health from the Medical Outcomes Study Short Form 12, version 2, that asks, "In general would you say your health is poor, fair, good, very good, or excellent?"[21]

Perceived lifetime cancer risk for breast, cervical, and colon cancer were the main outcome variables. For each of the 3 cancer sites, the women were asked, "What would you say is your risk of getting (cervical/breast/colorectal) cancer?" The response choices were "no risk," "very low risk," "low risk," "moderate risk," and "high/very high risk." For the final analyses on risk perception, these variables were dichotomized to "no/very low risk" and "low/moderate/high/very high risk" for cervical cancer and to "no/very low/low risk" and "moderate/high/very high risk" for breast and colorectal cancers. We grouped the risk perception responses differently because the actual risk for cervical cancer is considerably lower than that for breast and colorectal cancers. The self-reported history of screening for each cancer was dichotomized to yes or no and used as an outcome variable to examine the relationship between cancer risk perception and screening. Screening variables included Pap test in the previous 2 years, mammography in the previous 2 years, fecal occult blood test in the previous year, sigmoidoscopy in the previous 5 years, or colonoscopy in the previous 10 years. Explanatory variables were race/ethnicity (main independent variable), age, education, cancer history, income, marital status (never married, married/have partner, and formerly married), employment, type of health insurance (uninsured, private, or public), and numeracy scores (measured by participants' understanding of basic mathematical problems).

STATISTICAL ANALYSIS

We used χ^2 tests to generate descriptive statistics and assessed differences in study population characteristics by ethnic group. We used multivariate logistic regression models to examine the association between perception of cancer risk and ethnicity. We also fit separate multivariate logistic regressions to examine the association between risk perception and cancer screening (ie, whether participants had breast, cervical, or colon cancer screening within recommended intervals). We excluded women with a history of each specific cancer in the models involving the specific type of cancer. Models of cervical cancer screening controlled for hysterectomy, and we also conducted additional analyses excluding women who had undergone a hysterectomy. We included "missing" categories for income and employment status to prevent dropping of cases in the multivariate models because of missing data. All analyses were conducted using Stata 9.[22]

RESULTS

RECRUITMENT AND COLLABORATION

We received consent from physicians to send initial contact letters to 4523 women. We were unable to reach 906 women (20%) because of wrong telephone numbers or addresses, and 871 women (19%) were ineligible because of language, illness, or having left the physician's practice. We were able to contact 2746 women, 1319 of whom completed the baseline telephone interview, for a collaboration rate of 48%. After the telephone survey, 157 women declined to participate in the second in-person interview, and 2 had ineligible ethnicity. Our final sample for these analyses consisted of 1160 women.

STUDY POPULATION

Table 1 shows the race and ethnic distribution of the sample by other demographic and explanatory variables. The average participant was 61 years old, a high school graduate, and had an annual income of $25 000 to $30 000. Whites on average had more formal education, higher income, and a higher numeracy score than women from other ethnic groups. Of the Asian women, 85% were Chinese, 8% were Filipina, and 7% were other Asians. Of Latina women, 22% were Mexican, 45% were Central American, and the remaining third identified themselves as Latina or South American. Approximately 56% of the surveys were conducted in English, 28% were conducted in Chinese, and 16% were conducted in Spanish. Of the Latinas, 10% were US born and 76% completed the interviews in Spanish. Only 6.5% of Asian women were US born, and 79% of the interviews with Asian women were conducted in Chinese. Almost half of the participants (n=572) had either a self-reported or a family history of cancer. Most commonly reported cancers were breast, skin, and cervical for self-reported history and breast, colon, and lung for family history.

CANCER RISK PERCEPTION

When women were asked about their risk of getting cervical cancer on a scale from no risk to very high risk, nearly 60% of the women reported either no risk or very low risk (Table 2). A lower proportion of Latina women (39%) and a higher proportion of Asian women (73%) reported no or very low risk of cervical cancer. For risk perception of breast and colon cancer, about 42% of women reported no or very low risk perception, and 8% to 9% reported high or very high risk perception. Asian women generally had the lowest risk perception and Latina women had the highest risk perception compared with White women for the 3 cancer sites.

Ethnic differences in risk perception remained significant in multivariate models after education, age, income, marital status, cancer history, health status, health insurance, numeracy score, and employment were controlled for (Table 3). Compared with White women, Asians had a lower risk perception for the 3 cancer sites and Latina women had a higher risk perception. When answering the question about risk of getting colon cancer, Asians had lower odds of perceiving higher risk (odds ratio [OR], 0.6; 95% confidence interval [CI], 0.3–0.9) and Latina women had 3 times higher odds of perceiving higher risk (OR, 3.0; 95% CI, 1.8–5.0) compared with White women. There was no significant difference in risk perception between African American and White women (cervical, $P = .13$; breast, $P = .20$; and colon, $P = .16$).

Having a self-reported or family history of cancer was positively associated with a higher risk perception for breast and colon cancer. Self-reported poor health was significantly associated with a higher risk perception for the 3 cancer sites (cervical: OR, 3.0; 95% CI, 1.8–5.3; breast: OR, 2.5; 95% CI, 1.4–4.6; and colon: OR, 3.2; 95% CI, 1.8–6.0). Having household income of more than $50 000 was associated with a higher risk perception for cervical cancer. Age, education, marital status, employment, insurance coverage, and numeracy were not associated with perceived risk.

FACTORS ASSOCIATED WITH CANCER SCREENING

Close to 90% of women reported having undergone mammography and about 70% had undergone a Pap test in the previous 2 years (when women who had a hysterectomy were excluded, 78% had undergone a Pap test in the previous 2 years). About one-fourth of the women (27%) reported having undergone a fecal occult blood test in the previous year; 29% had undergone sigmoidoscopy in the previous 5 years; and 42% had undergone colonoscopy in the previous 10 years. When these 3 colon cancer screening tests were combined, about 70% of the study participants were current on colon cancer screening. In bivariate analysis, the colon cancer screening rate for Asians was significantly lower than for other ethnic groups ($P < .01$). Less than one-fourth (23%) of Asian women, about half of Latina and White women (47% and 55%, respectively), and about two-thirds of African American women (66%) reported having undergone colonoscopy screening in the past 10 years.

The only ethnic difference in screening was for colon cancer, where African American women had higher odds of having undergone colonoscopy than White women(OR, 2.4; 95% CI, 1.5–3.9). Although not shown in Table 4, older age was significantly associated with not having had a Pap test in the past 2 years, and poor health status was associated with not having undergone mammography in the past 2 years. Women with a family history of cancer were almost 2 times more likely to have undergone colonoscopy than women without a family history of cancer (OR, 1.7; 95% CI, 1.3–2.3). Women without insurance (OR, 0.5; 95% CI, 0.3–0.9) or with public insurance (OR, 0.7; 95% CI, 0.4–1.0) were less likely to have undergone colonoscopy than women with private insurance (not shown in Table 4).

In multivariate models, after demographic factors and cancer history were controlled for, risk perception for cervical and colon cancer was positively related to screening (Table 4). A higher cervical cancer risk perception was associated with higher odds of having had a Pap test in the previous 2 years. However, when we excluded women who had undergone a hysterectomy, there was no significant relationship between having had a Pap test in the previous 2 years and cervical cancer risk perception ($P = .52$). Although there was no significant relationship between having undergone mammography in the last 2 years and breast cancer risk perception ($P = .82$), reporting a moderate to very high risk perception for colon cancer was associated with higher odds of having undergone colonoscopy in the last 10 years (OR, 2.8; 95% CI, 1.4–5.4). There was no significant relationship between risk perception and overall colon cancer screening when the 3 colon cancer screening variables were combined as an indicator for being current on screening ($P = .10$).

COMMENT

We identified significant ethnic differences in how risk for cancer is perceived in a sample of diverse women. Differences in perceived risk for breast, cervical, and colon cancers persisted after demographics, numeracy, and personal and family history of cancer were controlled for. Asian women consistently had the lowest perceived risk of cancer to the point that half of the respondents specified no risk. In contrast, Latina women generally had the highest risk perception for each of the cancer sites and were 3 times as likely as White women to consider themselves at higher risk for cervical or colon cancer. Even though actual risks for cervical, colon, and breast cancer are different, study participants did not

differentiate between different cancer sites, reporting a similar risk for all 3 sites within each racial or ethnic group. These striking ethnic differences in perceived risk may in part be driven by immigrant status of the majority of Latinas and Asians, although the effects were almost mirror images of each other.

Consistent with previous studies,[23–25] a family history of cancer and a poor self-reported health status were associated with higher risk perception for all 3 cancers. Less education was only significantly related to lower risk perception for breast and colon cancer. Earlier studies on breast cancer risk found no relationship between education and risk perception.[24,26] Numeracy also had no significant association with perceived risk, suggesting that understanding of numbers and percentages did not affect how study participants assessed their risk. Our findings showed that African American women did not perceive their risk for cervical, breast, or colon cancer differently from White women, even though national data show that they have higher incidence and mortality rates of these cancers. These findings suggest that communication of cancer risk information may serve as an important tool to promote early detection.

Communication of risk is complex, depending, in part, on cultural values and beliefs common to specific groups. The marked lower perceived risk among Asian women was previously reported in the context of a breast cancer prevention study.[24] This may in part explain why Asian Americans have consistently lower rates of cancer screening that are not explained by insurance status, leading clinicians to emphasize the average risk faced by all women from any ethnic group. On the other hand, Latinas, who tend to have the lowest insurance coverage of any ethnic group, may be more likely to be screened because of higher perceived risk and thus have screening rates for cervical and breast cancers that are nationally similar to those of Whites.[27–29] We found that even though Latinas have the highest risk perception for cervical cancer, their screening rates did not differ from those of White women.

Clinicians may apply these data by asking their patients a question about perceived risk from a specific outcome. Because the way perceived risk operates within ethnic groups appears to differ, the clinician may use this as a predictor in treating patients. A recent report of a primer intervention to help people have a realistic understanding of risk was shown to improve medical data interpretation skills in predominantly White men and women from high and low socioeconomic status.[30] Similar interventions tailored to ethically diverse groups may help address ethnic disparities in obtaining cancer screening tests. Ethnic differences in actual cancer rates and true epidemiological risk exist, but there is no evidence that perceived risk is influenced by any knowledge or awareness of these facts. Furthermore, given the differences in invasiveness of the screening tests, clinicians should be aware of the cultural differences among ethnic groups and how such differences may affect adherence.

Our study has several limitations. The group of participants had a higher percentage of individuals who were current on cancer screening than the published national averages. The higher screening rate is partly because all these women were established patients in clinics with primary care clinicians and had visited a clinic in the previous 2 years. Self-reported test results were not validated, although other studies have shown no major ethnic

differences when self-reported test results were validated.[31,32] The study participants were a selected population, and although a spectrum of education level is represented in our sample, White and African American women in our study had a higher education level than the national average. Also, culture and communication skills may affect cancer risk perception and screening behavior, but these measures were beyond the scope of this study.

In summary, we found that Asian women had the lowest perceived risk for breast, cervical, and colon cancers and that Latinas had the highest perceived risk. This perceived risk was associated with obtaining self-reported cancer screening tests after other factors were accounted for. Evaluation of perceived risk of cancer may be useful to clinicians who are recommending screening tests and incorporating an intervention to help diverse populations understand risk and interpret medical data.

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Table 1

Demographics of 1160 Women Responding to Risk Perception Questionnaire, San Francisco, California, 2003–2005[a]

	Percentage				
Variables	**Total (N = 1160)**	**White (n = 338)**	**African American (n = 167)**	**Latina (n = 239)**	**Asian (n = 416)**
Age, y					
50–59	48.9	54.7	50.3	38.1	49.7
60–69	31.7	30.2	31.7	31.4	33.2
70–80	19.4	15.1	18.0	30.5	17.1
Education					
<High school	35.7	1.8	13.8	58.8	58.9
High school or GED diploma	11.8	3.9	23.3	12.6	13.2
>High school	52.3	94.1	62.9	28.5	27.9
Annual household income, $					
≤20 000	37.7	17.5	38.3	48.5	47.6
20 001–50 000	19.6	19.5	26.3	17.2	18.3
≥50 000	24.7	50.0	24.0	9.6	13.2
Marital status					
Never married	10.7	14.5	12.6	17.6	2.6
Married or partner	52.6	51.8	29.3	38.5	70.7
Formerly married	36.4	32.8	57.5	43.5	26.7
Insurance					
Uninsured	18.7	3.3	6.6	17.6	36.8
Private	41.2	64.2	43.1	28.9	28.9
Public	37.5	31.1	48.5	50.6	30.8
Health status					
Poor	13.5	4.7	12.0	14.2	20.7
Fair	32.5	13.3	35.3	45.6	39.4
Good	29.7	30.5	34.1	26.4	29.1
Very good or excellent	24.2	50.9	18.6	13.8	10.8
Employment					

Variables	Percentage				
	Total (N = 1160)	**White (n = 338)**	**African American (n = 167)**	**Latina (n = 239)**	**Asian (n = 416)**
Full or part-time	33.0	47.3	28.7	28.5	25.7
Not working	18.3	7.7	10.2	13.8	32.7
Retired	30.3	30.0	26.4	32.6	31.0
Disability	13.8	8.3	29.3	20.5	8.2
Self-reported history of cancer	17.8	25.7	18.6	20.1	9.6
Family history of cancer	41.6	55.6	56.3	40.6	24.8
Numeracy					
0–2	32.0	5.3	41.3	58.2	34.9
3–5	29.0	18.7	35.9	31.8	32.9
6–8	39.0	76.0	22.8	10.0	32.2

Abbreviation: GED, General Educational Development.

[a]Some cells do not equal 100% because of missing data: 18% had missing income data, 5% had missing employment status, and less than 1% of values of other variables were missing.

Table 2

Cancer Risk Perception Among 1160 Women by Ethnic Group, San Francisco, California, 2003–2005

	Percentage				
Risk Perception	**Total**	**White**	**African American**	**Latina**	**Asian**
Cervical cancer					
No risk	30.1	19.0	21.2	19.3	49.6
Very low risk	28.4	39.9	30.3	20.1	23.2
Low risk	25.0	27.4	24.2	31.8	19.2
Moderate	12.1	11.0	18.2	17.6	7.2
High or very high risk	4.4	3.0	6.1	11.3	0.8
Breast cancer					
No risk	20.7	2.4	7.3	10.0	48.1
Very low risk	21.9	26.8	24.2	20.1	18.0
Low risk	29.2	35.1	26.7	33.0	22.8
Moderate	19.1	27.4	27.9	19.3	8.3
High or very high risk	9.1	8.3	13.9	17.6	2.8
Colon cancer					
No risk	20.9	4.2	10.3	7.6	47.6
Very low risk	20.9	27.7	20.6	18.1	16.9
Low risk	31.1	42.8	34.6	28.1	21.4
Moderate	19.4	21.7	23.6	26.5	11.6
High or very high risk	7.7	3.6	10.9	19.7	2.5

Table 3

Demographic Associations With Increased Cancer Risk Perception Among 1160 Women, San Francisco, California, 2003–2005

	Odds Ratio (95% Confidence Interval)		
Demographics	**Risk of Cervical Cancer[a]**	**Risk of Breast Cancer[b]**	**Risk of Colon Cancer[b]**
Ethnicity			
White	1 [Reference]	1 [Reference]	1 [Reference]
African American	1.4 (0.9–2.3)	1.4 (0.8–2.3)	1.4 (0.9–2.4)
Latina	2.9 (1.8–4.6)[d]	1.4 (0.9–2.3)	3.0 (1.8–5.0)[d]
Asian	0.6 (0.4–0.9)[c]	0.3 (0.2–0.5)[d]	0.6 (0.3–0.9)[c]
Age, y			
50–59	1 [Reference]	1 [Reference]	1 [Reference]
60–69	0.8 (0.6–1.2)	1.2 (0.8–1.7)	1.3 (0.9–1.9)
70–80	1.2 (0.8–2.0)	0.9 (0.5–1.5)	1.4 (0.8–2.3)
Education			
<High school	0.7 (0.4–1.1)	1.0 (0.6–1.6)	0.7 (0.4–1.2)
High school or GED diploma	1.3 (0.8–2.1)	1.3 (0.8–2.1)	0.7 (0.4–1.2)
>High school	1 [Reference]	1 [Reference]	1 [Reference]
Income, $			
≤20 000	0.6 (0.4–1.0)[c]	0.9 (0.5–1.5)	0.9 (0.5–1.5)
20 001–50 000	0.6 (0.4–1.0)[c]	1.2 (0.7–1.9)	0.9 (0.6–1.5)
>50 000	1 [Reference]	1 [Reference]	1 [Reference]
Marital status			
Married or partner	1 [Reference]	1 [Reference]	1 [Reference]
Never married	1.3 (0.8–2.1)	0.8 (0.5–1.4)	0.8 (0.5–1.3)
Formerly married	1.1 (0.8–1.5)	0.9 (0.6–1.3)	0.9 (0.6–1.3)
Cancer			
Family history	1.1 (0.8–1.4)	2.3 (1.7–3.1)[d]	1.9 (1.4–2.6)[d]
Self-reported history of cancer	1.4 (1.0–1.9)	2.2 (1.6–3.2)[d]	1.9 (1.3–2.8)[d]
Health status			
Very good or excellent	1 [Reference]	1 [Reference]	1 [Reference]
Good	1.1 (0.8–1.7)	0.8 (0.5–1.2)	0.9 (0.6–1.5)
Fair	2.1 (1.3–3.1)[d]	1.4 (0.9–2.2)	2.1 (1.3–3.3)[d]
Poor	3.0 (1.8–5.3)[d]	2.5 (1.4–4.6)[d]	3.2 (1.8–6.0)[d]
Insurance status			
Private	1 [Reference]	1 [Reference]	1 [Reference]
No insurance	1.0 (0.6–1.6)	0.9 (0.5–1.6)	1.0 (0.6–1.8)
Public	1.0 (0.7–1.5)	0.8 (0.5–1.2)	0.7 (0.5–1.1)
Numeracy score			
0–2	1.1 (0.7–1.7)	0.9 (0.5–1.5)	1.1 (0.7–1.8)

Demographics	Odds Ratio (95% Confidence Interval)		
	Risk of Cervical Cancer[a]	Risk of Breast Cancer[b]	Risk of Colon Cancer[b]
3–5	0.9 (0.6–1.2)	0.8 (0.5–1.3)	1.0 (0.6–1.5)
6–8	1 [Reference]	1 [Reference]	1 [Reference]
Employment status			
Full- or part-time work	1 [Reference]	1 [Reference]	1 [Reference]
Not working	0.8 (0.5–1.2)	0.7 (0.4–1.2)	0.7 (0.4–1.2)
Retired	0.9 (0.6–1.4)	1.0 (0.7–1.6)	1.1 (0.7–1.8)
Disability	1.0 (0.6–1.7)	1.0 (0.6–1.8)	1.5 (0.9–2.6)
Had hysterectomy	0.5 (0.3–0.6)[d]	NA	NA

Abbreviations: GED, General Educational Development; NA, not applicable.

[a] No/very low risk vs low/moderate/high/very high risk.

[b] No/very low/low risk vs moderate/high/very high risk.

[c] $P < .05$.

[d] $P < .01$.

Table 4

Predictor of Obtaining Cancer Screening Test Among 1160 Women, San Francisco, California, 2003–2005[a]

	Papanicolaou Test in Last 2 Years		Mammography in Last 2 Years		Colonoscopy in Last 10 Years	
	Unadjusted Screened, %	Adjusted Odds Ratio (95% Confidence Interval)	Unadjusted Screened, %	Adjusted Odds Ratio (95% Confidence Interval)	Unadjusted Screened, %	Adjusted Odds Ratio (95% Confidence Interval)
Risk perception						
No risk	58.5	1 [Reference]	82.2	1 [Reference]	18.7	1 [Reference]
Very low risk	74.5	1.5 (1.0–2.3)[b]	87.9	0.9 (0.5–1.7)	43.7	1.4 (0.8–2.3)
Low risk	73.0	1.6 (1.0–2.4)[b]	87.9	1.0 (0.5–1.9)	48.0	1.5 (0.9–2.4)
Moderate	74.6	1.8 (1.1–3.1)[b]	90.8	1.2 (0.6–2.6)	57.1	2.1 (1.2–3.6)[c]
High or very high risk	72.0	2.3 (1.1–5.0)[b]	84.6	0.7 (0.3–1.5)	62.8	2.8 (1.4–5.4)[c]
Ethnicity						
White	74.2	1 [Reference]	89.3	1 [Reference]	54.5	1 [Reference]
African American	62.7	1.1 (0.7–1.9)	89.2	1.5 (0.7–3.0)	65.8	2.4 (1.5–3.9)[c]
Latina	61.9	0.9 (0.5–1.5)	90.8	1.7 (0.8–3.5)	46.8	1.3 (0.8–2.2)
Asian	72.1	1.0 (0.6–1.6)	80.7	0.8 (0.4–1.6)	22.9	0.7 (0.5–1.1)

[a] Other explanatory variables are not shown in the table; all of these multivariate logistic models were also adjusted for age, education, income, marital status, cancer history, hysterectomy, health status, insurance status, numeracy score, and employment status.

[b] $P < .05$.

[c] $P < .01$.