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Physician Gender Differences in General and Cancer-Specific Prevention Attitudes and Practices

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Abstract

Background—Findings are inconsistent regarding physician gender differences in general prevention practices and cancer-specific attitudes and practices.

Methods—We analyzed cross-sectional data from randomly selected physicians (N = 722) to test associations of gender with prevention practices and attitudes.

Results—Chi-square analyses ($P < .05$) showed gender differences for 14% (7/49) of the general and cancer-specific practices and attitudes tested. Multivariate analyses revealed that gender significantly ($P < .05$) predicted general prevention practices and cancer-specific attitudes in 4 models. Female gender predicted discussion of physical activity, violence, and use of substances. Male gender predicted belief in effectiveness of prostate-specific antigen screening.

Conclusions—Overall, male and female physicians showed more similarities than differences, but physician gender was associated with a number of important general and cancer-specific prevention services. Female physicians were more likely to discuss general health prevention activities than male physicians, especially issues considered sensitive. We discuss implications for research and education.

The US Preventive Services Task Force (USPSTF) has developed evidence-based guidelines for adult preventive services, among which colorectal and breast cancer screening are the most beneficial.[1] However, the potential health benefits of these services have not been realized due to underutilization in the general age-eligible population. Further, minority and low socioeconomic status groups have lower rates of utilization of many preventive services. Research exploring possible explanations for this, as well as disparities in utilization, is a critical next step.[2,3]

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Despite recognition of the necessity of cancer prevention and screening practices, there has been some controversy as to optimal guidelines. For example, in the past, there has been a lack of consensus regarding the age at which women at average risk of breast cancer should initiate routine mammography screening, the effectiveness and efficacy of prostate-specific antigen (PSA) screening for prostate cancer, the optimal method of screening for colorectal cancer, and cancer screening among patients aged 80 and older. Furthermore, endorsement of cancer screening recommendations tends to vary across institutions. For instance, the USPSTF recommends screening mammography every 1 or 2 years for women 40 years and older, with or without the addition of a clinical breast examination (CBE), although they state the strongest evidence for reduced mortality is found in women 50 to 69 years old.[4] The National Cancer Institute concurs with this recommendation for women in their 40s, although the American Cancer Society recommends that women 40 years and older have screening mammograms and CBEs annually.[5] Thus, variation in screening practices among physicians is understandable.

Studies that have sought to explain physician variation in preventive practices have explored the role of several physician characteristics, including gender. However, results of the effect of physician gender on physicians' practices and attitudes about preventive services have been inconsistent. Regarding physician practices, the female gender was related to longer patient visits,[6–10] provision of female-specific preventive services,[6,9,11,12–18] referrals to other physicians and follow-up recommendations,[6] preventive counseling,[9,12–17] asking new patients about prevention,[18] recommending mammograms for women in their 40s,[19,20] questioning patients about health risks and unhealthy behaviors, and providing more psychosocial support.[8,11,21] One study reported that physician specialty was a more powerful predictor of women's utilization of preventive services than physician gender.[15] Findings are inconsistent regarding effectiveness of gender-concordant relationships. Hall et al.[9] found that female physician-female patient dyads were more supportive and egalitarian in communication when compared to female physician-male patient dyads. Limited evidence showed that 40- to 49-year-old female patients of female practitioners had a higher likelihood of obtaining a mammogram.[22] Another study reported that gender concordance did not affect receipt of flu shots, cholesterol tests, or breast and pelvic exams in female patients.[23] Further, female patients received less lifestyle and psychosocial counseling regardless of physician gender. Results have also shown that gender-concordant physician-patient pairs showed no additional preventive benefit beyond that of having a female physician.[17]

Studies that have examined gender differences in physician attitudes and beliefs have found that females are more likely than male physicians to believe that mammograms are effective,[18] more likely to feel "very comfortable" performing gender-concordant procedures and less likely to be "very comfortable" obtaining sexual histories from men,[18,24] less likely to feel their prostate examination skills are excellent,[24] more likely to feel responsible for their patients' screening follow-through, and less likely to be deterred by female patients' embarrassment when performing clinical breast examinations.[25]

Given the inconsistency of previous results, in this study, we examined the role that gender plays in physicians' general and cancer-specific prevention and screening practices and

attitudes. Although some research has examined physician gender and prevention practices, in this study, we also evaluated specific gender differences in cancer prevention attitudes, specifically about the perceived effectiveness of cancer screening tests and attitudes about breast cancer risk reduction.

MATERIALS AND METHODS

This study was part of a larger funded project with the purpose of learning about knowledge, attitudes, and practices regarding general care and cancer education, screening, and care among Latino and White physicians who treated Latino patients. We randomly selected physicians from the American Medical Association master file database who were eligible for inclusion if they self-identified as Latino/Hispanic or White/Caucasian; were younger than 65 years old; located in 1 of 5 geographic regions (California, Texas, Florida, New York/New Jersey, and Illinois); and categorized as general internist, family physician, gynecologist, or oncologist. We stratified the sample to have an equal number of physicians by ethnicity, region, and specialty. The total selected sample was 2000 physicians.

Two thousand surveys were mailed in November 2001, with a second mailing in February 2002. Survey packets included the survey; a preaddressed, postage-paid envelope; a cover letter indicating the study purpose; and a 5-dollar bill in appreciation. The study was approved by the University of California San Francisco Committee on Human Research.

The survey included items regarding physicians' general and cancer-specific prevention practices and attitudes, and it emphasized certain areas to evaluate the extent to which physicians were following recommended cancer screening and prevention guidelines. We developed survey items with input from and review by physicians and by review of the literature.

Physician self-reported gender was the predictor in this study, assessed as male or female.

Attitudinal—For each of the cancer sites (breast, cervical, prostate, and colorectal) and their specific screening test, there was an item that read, "How effective do you think (*screening test*) screening is for detecting possible (*cancer site*) cancer?" Scoring was on a Likert-type scale ranging from 1, extremely Effective to 6, Not effective at all. For analyses, the responses for "effectiveness" were collapsed into 1, Extremely/Very Effective; 2, Quite Effective; 3, Somewhat Effective; and 4, a Little Effective/Not Effective at all. In addition, 6 items rated the extent to which physicians agreed with attitudes concerning breast cancer risk reduction, which were scored on a Likert scale ranging from 1, Strongly disagree to 5, Strongly agree.

Behavioral—We assessed general prevention practices with 10 items measuring frequency of discussion of issues such as immunizations and alcohol use during a new patient evaluation, which was rated on a 5-point Likert-type scale ranging from 1, Almost always/ Always to 5, Almost never/Never. Also, the survey contained items that assessed cancer-specific prevention practices. The majority of those items assessed physician recommendations regarding the frequency of cancer screening for patients of various age

groups at average risk of breast, cervical, prostate, and colorectal cancer with dichotomous (yes/no) response options. One set of items assessed which colorectal cancer screening tests physicians routinely recommended for an average risk patient 50 years or older: fecal occult blood test, sigmoidoscopy, colonoscopy, double-contrast barium enema, and digital rectal exam or combinations of those. The item scores were dichotomous (recommend/do not recommend).

Covariates—We tested physician demographic and practice characteristic items that were significantly associated with physician gender in univariate analyses for significant association to each outcome. The variables that were significantly related to each outcome were included as covariates in the individual model. In addition, because physician race/ethnicity and specialty have been associated with prevention services in previous research, we tested them for inclusion as covariates via significant association with each outcome regardless of whether they were significantly associated with physician gender. The ability to test for certain covariates was influenced by the sampling frame, (eg, adjusting for physician race/ethnicity was affected by the fact that almost the entire sample was either Latino or White). Items that assessed physicians' self-reported assumptions about patient caseload were not used as covariates because the item responses may not have been accurate as a true representation of patients.

Data Analysis

We calculated descriptive statistics for sociodemographic items, practice characteristics, and prevention-related outcomes. Univariate analyses, used to identify significant associations between physician gender and sociodemographic/practice characteristics, included *t* tests and chi-square and Fisher's exact test statistics. We used chi-square and Fisher's exact tests to identify associations between physician gender and general and cancer-specific prevention attitudes and practices. We used the sequentially rejective Bonferroni test to adjust for multiple testing.[26] Next, we conducted multivariate analyses using a general linear models (GLM) approach to explain the percent of the variance in the outcomes (general and cancer-specific screening attitudes and practices) accounted for by physician gender. We modeled outcomes if they were significantly associated with physician gender in univariate analyses, and we included covariates that were statistically associated with physician gender and each outcome in univariate analyses. The statistical level of significance was $P < .05$ for data interpretation. We conducted all analyses using SPSS version 13.0.1 for Windows.[27]

RESULTS

Demographic and Practice Characteristics

Of the 2000 mailed surveys, 69 were undeliverable (4%), 55 actively refused to participate (3%), 51 were ineligible (3%) based on inclusion criteria, and 1083 (54%) were nonrespondents. Thus, 742 physicians completed the physician survey; the completion rate was 37%. Based on the sampling frame, the response rate was 30% (303/1000) for Latino physicians and 41% (406/1000) for White physicians. Responders differed slightly from the entire sampling frame by physician race/ethnicity: 50% of the sampling frame was reportedly White, and 50% was Latino in contrast to survey responders in which 41.3%

were Latino, 55.4% were White, and 3.3% were Other Ethnicity. See Table 1 for physician demographic and practice characteristics and differences by physician gender.

Association of Physician Gender and General Prevention Practices

There were significant relationships between physician gender and 4 out of 10 items regarding discussion of general prevention practices: physical activity ($\chi^2_4 = 10.13$, $P < .05$), sexual behavior ($\chi^2_4 = 38.46$, $P < .001$), violence ($\chi^2_4 = 17.25$, $P < .01$), and use of substances other than alcohol ($\chi^2_4 = 10.55$, $P < .05$; Table 2).

Association of Physician Gender and Cancer-Specific Prevention Practices and Attitudes

Physician gender was significantly associated with recommendations for screening mammograms for women younger than 40 years old at average risk of breast cancer ($\chi^2_3 = 11.14$, $P < .05$; Table 3), recommendations for Pap smears for women younger than 20 years old at average risk of cervical cancer ($\chi^2_3 = 13.76$, $P < .005$; Table 4), and attitude toward the effectiveness of PSA screening to detect possible prostate cancer ($\chi^2_3 = 13.59$, $P < .005$; Table 5).

Ability of Physician Gender to Predict Prevention Practices and Attitudes

Based on the univariate analyses, 7 models were constructed using physician gender as the predictor and adjusting for previously specified covariates. Results of the GLM (Table 6) showed that gender was a significant predictor of physicians' discussion of 3 general prevention practices and the cancer-specific attitude of perceived effectiveness of PSA screening for prostate cancer. The remaining 3 models violated testing assumptions; therefore, results are not shown, as they are inconclusive. Physician gender was the only significant predictor ($P < .01$) of discussion of physical activity, accounting for approximately 1% of the variance in the outcome. Likewise, physician gender was the only significant predictor ($P < .05$) of discussion of use of substances other than alcohol, accounting for approximately 1% of the variance in the outcome. Females were more likely to discuss physical activity ($B = -0.23$) and use of other substances ($B = -0.25$) than male physicians. Physician gender and specialty were significant predictors ($P < .001$) of discussion of violence, accounting for approximately 2% and 5% of the variance, respectively. The model accounted for 7% of the variance in discussion of violence ($R^2 = 0.070$). Female physicians ($B = -0.314$) and those in an obstetrics/gynecology specialty ($B = -0.700$) were more likely to discuss violence. Finally, gender was a significant predictor ($P < .05$) of perceived effectiveness of PSA screening and accounted for approximately 1% of the variance, although age was also significant ($P < .01$) and accounted for 2%. The model accounted for 4% of the variance in attitude in which female ($B = 0.310$) and younger ($B = -0.024$) physicians were less likely to believe in PSA effectiveness.

DISCUSSION

Not many physician gender differences existed (only 14% of practices and attitudes tested), but where they did exist, physician gender more often affected the discussion of general health rather than cancer-specific prevention practices.

General Prevention Practices

Females were more likely than males to “almost always/always” or “very often” discuss physical activity, sexual behavior, violence, and use of substances other than alcohol. Once controlling for covariates through multivariate analyses, interpretable models indicated that these relationships remained, and gender was a significant predictor of discussing physical activity, violence, and use of other substances. The results are corroborated by reports that female physicians provided more preventive counseling for patients than male physicians[8,11,17,21]; further, the effect is stronger when discussing sensitive topics.[17] In this study, with the exception of “physical activity,” females were more likely to discuss items that may be considered sensitive. The use of “other” substances may be considered less socially acceptable than alcohol use, which would explain why there was no difference in discussion of alcohol. The items significantly associated with gender (with the exception of physical activity) may be considered less sensitive subjects. Perhaps female physicians are more comfortable and likely to broach sensitive areas with patients as has been previously reported.[18,21] In addition, female and male physicians have different communication styles[7,10] in which female physicians talk more and engage in more positive talk, partnership building, question asking, and information giving.[9,12,28] Discussion of prevention may be influenced not only by physicians’ communication styles, but also patients’ preferences and expectations.[17] Patients might be more inclined to raise sensitive subjects with a female physician because they talk more with female physicians[7] and perhaps expect more empathy.

Cancer-Specific Prevention Practices and Attitudes

One breast cancer item, recommendation for screening mammogram for women younger than 40 years old, was significantly associated with physician gender. Male physicians were more likely to recommend this screening every 1 or 2 years, whereas females recommended it at “other” time intervals or not at all. Current mammogram guidelines recommend screening every year, or every 2 years, for women over 40 years, although the strongest evidence for reduced mortality is found in women 50 to 69 years old.[4] Male physicians may have suggested mammogram screening for this younger cohort because guidelines are controversial and sometimes vague or perhaps due to lesser knowledge of guidelines. The results differ from studies that have shown female physicians were more likely to recommend mammogram screening every 1 to 2 years for women 40 to 49 and annually for women 50 to 59 and over 70 years of age.[20] The extent to which physician gender predicts mammogram recommendation for women under 40 years when adjusting for other factors is unknown because the model for this outcome was not interpretable.

In the case of Pap smears for women younger than 20 years old, female physicians were more likely to recommend screening every year. USPSTF guidelines and most other entities recommend that women have their first Pap smear annually by age 21, or 3 years after their first sexual intercourse, whichever comes first.[4] Therefore, as was the case with mammogram screening, it appears that female physicians more often recommended screening for cervical cancer at frequencies that match guidelines. Female physicians may be more aware of patients’ sexual histories than male physicians because patients are more comfortable talking to them.[7] This may also be influenced by the fact that female physicians

are more comfortable discussing sensitive issues.[18,21] It could not be estimated to what extent physician gender predicted Pap smear recommendation for women under 20 years while controlling other factors because the model was not interpretable.

Physicians differed in their belief of PSA screening effectiveness at detecting potential prostate cancer; male physicians more often indicated that they felt PSA screening was "extremely/very effective" or "quite effective," whereas female physicians felt it was "somewhat effective" or a "little effective/not effective at all." With other variables controlled for in the model, this held true, and gender was a significant predictor of attitude toward PSA effectiveness. The effectiveness of prostate screening with PSA is controversial. Studies have shown that the PSA test has limited accuracy and predictive power, leading to high false-positive and false-negative findings.[29] Although 1 study reported male physicians were more likely to follow prostate cancer screening guidelines,[20] this study substantiates reports that although there were no gender differences in screening recommendations, male physicians were more confident in the effectiveness of prostate screening.[30] Physician age influences this relationship, as GLM results showed that attitude toward PSA was most strongly predicted by age in which younger physicians were less likely to believe that PSA screening was effective. Younger physicians may be better informed of guidelines for prostate cancer screening, which state that evidence is inconsistent regarding the effectiveness due to unclear risks and benefits.

Finally, there were no significant associations between physician gender and colorectal cancer screening items, perhaps because colorectal cancer screening is a gender-neutral test. There is also stronger evidence supporting the efficacy of colorectal cancer screening than PSA screening, although evidence is lacking about which test or combination of tests is most effective. Further, the decision to use a colorectal cancer screening test should be based on "patient preferences, medical contraindications, patient adherence, and resources for testing and follow-up."[4]

Strengths and Limitations

The low response rate and the fact that study was designed to include only Latino and White physicians affects generalizability of findings to the broader physician population. In the study, we did not sample the patients of physicians, so analysis of gender-concordant patient-physician relationships was not possible. This was a cross-sectional study whereby causal inferences cannot be made. We conducted the study 5 years ago, and practice guidelines have since changed due to evidence on safety and efficacy, which affects the usefulness of some of the findings. For instance, most physicians agreed that hormone replacement therapy (HRT) benefits outweigh risks, although recommendations for the use of HRT have changed given studies that have shown a link between HRT use and increased risk of breast cancer.

Despite these caveats, this study had noteworthy advantages. Comparatively, the sample was large, represented multiple specialties and practice types, and covered multiple regions of the country. The survey included not only items that tapped cancer prevention practices and attitudes, but general prevention practices as well. Items also questioned screening for patients in specific age groups. This was important because screening guidelines do vary by

age, and many studies have not examined differences in practices related to screening of different age groups. This is especially true for screening in older or younger patient cohorts such as mammograms in women younger than 40 and Pap smears in women younger than 20. Finally, most studies of physicians' preventive practices and/or attitudes have relied on administrative data sets or patient reports rather than surveying physicians directly.

Implications

Studies should investigate how physicians make decisions given controversial screening guidelines, how physician gender differences affect patients, and the higher likelihood of female physicians to discuss general prevention practices (specifically sensitive ones) with new patients and evaluate how communication styles affect this pattern. Findings may elucidate the need for education in health behavior counseling and communication between physicians and patients. To effectuate this, health care systems need to accommodate the physician's additional time required with the patient and provide suitable incentives. Physician training should include teaching culturally sensitive communication given the growing proportion of minority communities. Finally, more education is necessary regarding screening guidelines, especially those that are vague or controversial.

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References

1. Agency for Healthcare Research and Quality. The Guide to Clinical Preventive Services 2005: Recommendations of the US Preventive Services Task Force. Rockville, MD: AHRQ, Department of Health and Human Services; 2005. p. 1-192.
2. Gornick ME. A decade of research on disparities in Medicare utilization: lessons for the health and health care of vulnerable men. Am J Public Health. 2003; 93:753–759. [PubMed: 12721137]
3. Smedley, BD.; Stith, AY.; Nelson, AR. Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care. Washington, DC: Institute of Medicine, National Academy Press; 2003.
4. US Preventative Services Task Force. [Accessed May 2006.] Guide to Clinical Preventive Services. 2005. Available at: http://www.ahrq.gov/clinic/uspstf/usp-stopics.htm#Ctopics
5. Smith A, Saslow D, Sawyer K, et al. American Cancer Society guidelines for breast cancer screening: update 2003. Can J Clin. 2003; 53:141–169.
6. Franks P, Bertakis KD. Physician gender, patient gender, and primary care. J Womens Health (Larchmt). 2003; 12:73–80. [PubMed: 12639371]
7. Roter D, Lipkin M Jr, Korsgaard A. Sex differences in patients' and physicians' communication during primary care medical visits. Med Care. 1991; 29(11):1083–93. [PubMed: 1943269]
8. Bensing JM, van den Brink-Muinen A, de Bakker DH. Gender differences in practice style: a Dutch study of general practitioners. Med Care. 1993; 31(3):219–29. [PubMed: 8450680]
9. Hall JA, Irish JT, Roter DL, et al. Gender in medical encounters: an analysis of physician and patient communication in a primary care setting. Health Psychol. 1994; 13(5):384–92. [PubMed: 7805632]
10. Roter DL, Hall JA, Aoki Y. Physician gender effects in medical communication: a meta-analytic review. JAMA. 2002; 288(6):756–64. [PubMed: 12169083]

11. Woodward CA, Hutchison BG, Abelson J, et al. Do female primary care physicians practice preventive care differently from their male colleagues? Can Fam Physician. 1996; 42:2370–2379. [PubMed: 8969856]
12. Bertakis KD, Helms LJ, Callahan EJ, et al. The influence of gender on physician practice style. Med Care. 1995; 33:407–416. [PubMed: 7731281]
13. Hall JA, Palmer RH, Orav EJ, et al. Performance quality, gender, and professional role. A study of physicians and nonphysicians in 16 ambulatory care practices. Med Care. 1990; 28:489–501. [PubMed: 2355755]
14. Levy S, Dowling P, Boult L, et al. The effect of physician and patient gender on preventive medicine practices in patients older than fifty. Fam Med. 1992; 24:58–61. [PubMed: 1520350]
15. Franks P, Clancy CM. Physician gender bias in clinical decision making: screening for cancer in primary care. Med Care. 1993; 31:213–218. [PubMed: 8450679]
16. Lurie N, Slater J, McGovern P, et al. Preventive care for women: does the sex of the physician matter? N Engl J Med. 1993; 329:478–482. [PubMed: 8332153]
17. Henderson JT, Weisman CS. Physician gender effects on preventive screening and counseling: an analysis of male and female patients' health care experiences. Med Care. 2001; 39:1281–1292. [PubMed: 11717570]
18. Lurie N, Margolis KL, McGovern PG, et al. Why do patients of female physicians have higher rates of breast and cervical cancer screening? J Gen Intern Med. 1997; 12:34–43. [PubMed: 9034944]
19. Dominick KL, Skinner CS, Bastian LA, et al. Provider characteristics and mammography recommendation among women in their 40s and 50s. J Womens Health (Larchmt). 2003; 12:61–71. [PubMed: 12639370]
20. Herman CJ, Hoffman RM, Altobelli KK. Variation in recommendations for cancer screening among primary care physicians in New Mexico. J Community Health. 1999; 24:253–267. [PubMed: 10463470]
21. Frank E, Harvey LK. Prevention advice rates of women and men physicians. Arch Fam Med. 1996; 5:215–219. [PubMed: 8769910]
22. Cassard SD, Weisman CS, Plichta SB, et al. Physician gender and women's preventive services. J Womens Health. 1997; 6:199–207. [PubMed: 9140854]
23. Schmittdiel J, Grumbach K, Selby JV, et al. Effect of physician and patient gender concordance on patient satisfaction and preventive care practices. J Gen Intern Med. 2000; 15:761–769. [PubMed: 11119167]
24. Lurie N, Margolis K, McGovern PG, et al. Physician self-report of comfort and skill in providing preventive care to patients of the opposite sex. Arch Fam Med. 1998; 7:134–137. [PubMed: 9519917]
25. Desnick L, Taplin S, Taylor V, et al. Clinical breast examination in primary care: perceptions and predictors among three specialties. J Womens Health. 1999; 8:389–397. [PubMed: 10326993]
26. Gordi T, Khamis H. Simple solution to a common statistical problem: interpreting multiple tests. Clin Therapeutics. 2004; 26:780–786.
27. SPSS for Windows [computer program]. Rel. 13.0.1. Chicago: SPSS Inc; 2004.
28. Cooper-Patrick L, Gallo JJ, Gonzales JJ, et al. Race, gender, and partnership in the patient-physician relationship. JAMA. 1999; 282:583–589. [PubMed: 10450723]
29. Hernandez J, Thompson IM. Prostate-specific antigen: a review of the validation of the most commonly used cancer biomarker. Cancer. 2004; 101:894–904. [PubMed: 15329895]
30. Hoffman RM, Papenfuss MR, Buller DB, et al. Attitudes and practices of primary care physicians for prostate cancer screening. Am J Prev Med. 1996; 12:277–281. [PubMed: 8874692]

Table 1

Self-Reported Sociodemographic and Practice Characteristics of Physicians*

Characteristic	Percent Distribution			*P* Value‖
	Overall†	Female‡	Male§	
Age, mean (SD)	45.9 (8.5)	41.8(6.8)	47.6(8.6)	**<0.001**
Race/ethnicity				.377
Latino, Latin American, or Hispanic	41.3	40.5	41.6	
White, European American, or Caucasian	55.4	54.8	55.5	
Other (Asian/Asian American, Black/African American, Native American or American Indian or Alaska Native, multiethnic or mixed ethnicity)	3.3	4.1	2.9	
Specialty				
Family Medicine	38.3	38.0	38.5	
Internal Medicine	35.8	31.5	37.4	.273
Obstetrics/gynecology	23.2	27.3	21.5	
Other	2.8	3.2	2.6	
Subspecialty				
Yes	25.6	15.7	29.6	**<.005**
No	74.4	84.3	70.4	
Provide patient care				N/A
Yes	100	100	100	
No	0	0	0	
Clinical practice type				
Private office, solo practice	27.0	17.6	30.7	
Private office, group practice	44.8	41.9	46.2	
Community clinic	4.6	8.1	3.1	
Health Maintenance Organization (HMO)	3.7	6.2	2.7	
University-based medical practice	6.5	7.6	6.1	**<.001**
Public hospital/clinic	5.1	6.2	4.7	
Veterans Affairs hospital or clinic	1.0	1.0	1.0	
Other	7.3	11.4	5.5	
Majority of work week time spent				
Direct care	94.6	94.0	94.8	
Teaching	1.1	1.4	1.0	
Administrative activities	1.8	2.3	1.5	
Other activities	2.4	2.3	2.7	
Patient Sociodemographics				
Age				
Under 40 y old	36.9	39.7	35.8	**<.05**
40–64 y old	35.4	38.9	34.0	**<.001**
65 or older	29.4	23.2	32.0	**<.001**
Insurance status				
Medicare	26.4	20.2	28.8	**<.001**

Characteristic	Percent Distribution			
	Overall†	Female‡	Male§	*P* Value‖
Medicaid	14.6	12.5	15.4	.053
Private/fee for service	20.8	23.1	19.8	.062
HMO/managed care	36.3	37.5	35.8	.479
Uninsured/free care/self-pay	11.8	15.1	10.3	**<.05**
Ethnicity				
Asian/Asian American	5.2	6.9	4.5	**<.001**
Black/African American	13.7	14.6	13.4	.300
Latino/Latin Amer./Hispanic	30.7	30.0	30.8	.721
Native American, American Indian, or Alaska Native	1.5	2.0	1.2	.169
Pacific Islander or Native Hawaiian	1.3	1.4	1.3	.779
White, European American, or Caucasian	48.1	43.8	50.0	**<.01**
Multiethnic/mixed ethnicity	6.9	8.6	6.25	**<.05**

*Gender differences in physicians' time spent during the work week were not examined due to small cell sizes and inadequate power to detect differences between groups. Bold indicates $p < 0.05$. N/A indicates not applicable.

†N = 739.

‡N = 217.

§N = 522.

‖Two-sided *P* value from χ^2 and Fisher's exact tests for comparison of proportions and independent *t* test for comparison of means.

Table 2

Association of Physician Gender and Discussion Frequency of General Prevention Practices

	Percent Distribution		
Item	**Female**	**Male**	***P* Value***
Seat belt use			
Almost always/always	8.5	7.4	.972
Very often	8.5	9.0	
Fairly often	14.0	13.5	
Once in a while	26.5	25.4	
Almost never/never	42.5	44.7	
Immunizations			
Almost always/always	27.3	23.0	.477
Very often	24.9	26.0	
Fairly often	26.8	27.4	
Once in a while	14.4	18.6	
Almost never/never	6.7	5.0	
Cigarette smoke exposure			
Almost always/always	65.4	55.0	.129
Very often	21.0	29.0	
Fairly often	8.9	10.7	
Once in a while	3.3	3.9	
Almost never/never	1.4	1.4	
Healthy eating habits			
Almost always/always	40.7	30.5	.082
Very often	36.4	39.5	
Fairly often	18.2	22.5	
Once in a while	3.7	6.3	
Almost never/never	0.9	1.4	
Sun exposure			
Almost always/always	8.9	4.9	.236
Very often	20.6	18.9	
Fairly often	27.6	29.2	
Once in a while	30.8	31.2	
Almost never/never	12.1	15.8	
Physical activity			
Almost always/always	41.1	29.8	**<.05**
Very often	35.5	39.2	
Fairly often	17.8	22.0	
Once in a while	4.2	7.5	
Almost never/never	1.4	1.6	
Sexual behavior			
Almost always/always	31.9	15.0	**<.001**

	Percent Distribution		
Item	**Female**	**Male**	***P* Value***
Very often	28.6	27.0	
Fairly often	23.5	24.7	
Once in a while	11.7	27.0	
Almost never/never	4.2	6.3	
Violence			
Almost always/always	8.6	3.0	**<.005**
Very often	13.3	11.4	
Fairly often	24.8	19.7	
Once in a while	35.2	38.6	
Almost never/never	18.1	27.2	
Alcohol use			
Almost always/always	40.4	30.4	.139
Very often	25.4	30.4	
Fairly often	20.7	24.7	
Once in a while	11.7	12.6	
Almost never/never	1.9	2.0	
Use of substances other than alcohol			
Almost always/always	31.0	19.8	**<.05**
Very often	22.5	25.9	
Fairly often	22.1	25.3	
Once in a while	19.7	22.8	
Almost never/never	4.7	6.2	

*Two-sided *P* value from χ^2 tests for comparison of proportions.

Bold indicates $p < 0.05$.

Table 3

Association of Physician Gender and Breast Cancer Prevention Attitudes and Practices

	Percent Distribution		
Item	**Female**	**Male**	***P* Value***
Mammogram <40 y old			**<.01**
Every year	1.0	4.5	
Every 2 years	7.8	13.0	
Other	42.2	34.3	
Do not recommend	49.0	48.2	
Mammogram 40–49 y			.157
Every year	57.2	50.0	
Every 2 y	40.4	44.4	
Other	1.4	3.4	
Do not recommend	1.0	2.2	
Mammogram 50–69 y			.917
Every year	96.2	95.6	
Every 2 y	3.4	4.0	
Other	0	0	
Do not recommend	0.5	0.4	
Mammogram 70–79 y			.717
Every year	83.7	81.7	
Every 2 y	9.6	11.8	
Other	5.3	4.4	
Do not recommend	1.4	2.2	
Mammogram 80+ y			.555
Every year	58.3	54.1	
Every 2 y	11.2	14.9	
Other	16.0	15.3	
Do not recommend	14.6	15.7	
Mammography effective			.085
Extremely/very effective	69.9	62.3	
Quite effective	24.4	27.7	
Somewhat effective	5.7	8.4	
A little/not effective at all	0	1.6	
Genetic testing not worthwhile			.233
Strongly disagree	8.7	6.9	
Disagree	43.0	35.8	
Undecided	31.4	34.3	
Agree	14.5	19.2	
Strongly agree	2.4	3.8	
Raloxifene unsafe for prevention because risks and benefits unclear			.463
Strongly disagree	4.8	6.9	

	Percent Distribution		
Item	**Female**	**Male**	***P* Value***
Disagree	41.3	38.6	
Undecided	30.8	32.3	
Agree	21.6	19.0	
Strongly agree	1.4	3.2	
Hormone replacement therapy benefits outweigh risks			.979
Strongly disagree	4.3	3.5	
Disagree	11.6	11.8	
Undecided	11.6	11.0	
Agree	54.1	53.9	
Strongly agree	18.4	19.7	
Tamoxifen benefits outweigh risks if family history of breast cancer			.315
Strongly disagree	0.5	1.2	
Disagree	4.8	6.7	
Undecided	43.5	35.6	
Agree	44.0	48.0	
Strongly agree	7.2	8.5	
Recommend mastectomy/oophorectomy for BRCA1 or 2 positive			.071
Strongly disagree	3.8	3.5	
Disagree	12.7	16.5	
Undecided	45.1	51.4	
Agree	33.3	26.0	
Strongly agree	5.2	2.6	
Computerized risk assessment tool helpful			.233
Strongly disagree	8.7	6.9	
Disagree	43.0	35.8	
Undecided	31.4	34.3	
Agree	14.5	19.2	
Strongly agree	2.4	3.8	

*Two-sided *P* value from χ^2 tests for comparison of proportions.

Bold indicates $p < 0.05$.

Table 4

Association of Physician Gender and Cervical Cancer Prevention Attitudes and Practices

	Percent Distribution		
Item	**Female**	**Male**	***P* Value***
Pap smear <20 y old			**<.005**
Every year	84.5	71.5	
Every 2 y	5.3	8.0	
Every 3 y	2.4	5.0	
Do not recommend	7.7	15.5	
Pap smear 20–49 y			.463
Every year	88.3	87.3	
Every 2 y	8.9	7.9	
Every 3 y	2.8	4.8	
Do not recommend	0	0	
Pap smear 50–64 y			.273
Every year	73.1	72.5	
Every 2 y	19.8	16.9	
Every 3 y	7.1	10.6	
Do not recommend	0	0	
Pap smear 65–79 y			.920
Every year	34.6	34.3	
Every 2 y	30.8	29.3	
Every 3 y	28.0	30.3	
Do not recommend	6.6	6.0	
Pap smear 80+ y			.560
Every year	17.5	20.4	
Every 2 y	13.3	16.0	
Every 3 y	26.1	23.4	
Do not recommend	43.1	40.2	
Pap smear effective			.429
Extremely/very effective	86.0	81.3	
Quite effective	12.1	16.4	
Somewhat effective	1.9	2.1	
A little/not effective at all	0	0.2	

*Two-sided *P* value from χ^2 tests for comparison of proportions.

Bold indicates $p < 0.05$.

Table 5

Association of Physician Gender and Prostate Cancer Prevention Attitudes and Practices*

	Percent Distribution		
Item	**Female**	**Male**	***P* Value†**
PSA 40–49 y old			.483
Every year	22.4	21.8	
Every 2 to 3 y	24.5	24.7	
Every 5 y	8.8	13.6	
Do not recommend	44.2	40.0	
PSA 50–69 y			.508
Every year	77.5	81.4	
Every 2 to 3 y	12.6	11.9	
Every 5 y	1.3	1.4	
Do not recommend	8.6	5.2	
PSA 70 to 79 y			.475
Every year	70.9	73.6	
Every 2 to 3 y	10.8	13.2	
Every 5 y	1.4	1.0	
Do not recommend	16.9	12.3	
PSA 80+ y			.976
Every year	46.0	48.1	
Every 2 to 3 y	10.7	10.6	
Every 5 y	2.0	1.9	
Do not recommend	41.3	39.4	
PSA effective			<**.005**
Extremely/very effective	28.4	40.8	
Quite effective	47.7	29.2	
Somewhat effective	29.7	23.0	
A little/not effective at all	14.2	7.0	

*PSA indicates prostate-specific antigen.

†Two-sided *P* value from χ^2 tests for comparison of proportions.

Bold indicates $p < 0.05$.

Table 6

General Linear Models With General and Cancer-Specific Prevention Practices and Attitudes as Dependent Variables

Model	Independent Variable and Applicable Covariates	*B* Coefficient	SE	*t* Value	*P* Value	Partial η^2
1: Discussion of Physical Activity	Gender					
	Female	−0.225	0.078	−2.875	**.004**	.011
	Male	—	—	—	—	—
2: Discussion of Violence	Gender					
	Female	−0.314	0.091	−3.463	**.001**	.017
	Male	—	—	—	—	—
	Specialty					
	Family Medicine	−0.270	0.288	−0.937	.349	.001
	Internal Medicine	−0.093	0.289	−0.321	.748	.000
	OB/GYN	−0.700	0.293	−2.391	**.017**	.008
	Other	—	—	—	—	—
	Race/ethnicity					
	Latino	−0.271	0.246	−1.103	.270	.002
	White	−0.112	0.244	−0.459	.647	.000
	Other	—	—	—	—	—
3: Discussion of Use of Other Substances	Gender					
	Female	−0.251	0.099	−2.531	**.012**	.009
	Male	—	—	—	—	—
4: Perceived Effectiveness of PSA Screening	Gender					
	Female	0.310	0.136	2.277	**.023**	.009
	Male	—	—	—	—	—
	Age	−0.024	0.007	−3.491	**.001**	.021

*OB/GYN indicates obstetrics and gynecology; PSA, prostate-specific antigen. Cells with a "—" indicate the reference categories, male gender, and "other" specialties.

Bold indicates $p < 0.05$.