

Short Communication

Disparities in Cervical Cancer Screening between Asian American and Non-Hispanic White Women

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Abstract

Background: Asian American women have higher cervical cancer mortality rates than non-Hispanic White women, yet have lower Pap screening rates than their White counterparts. This study examined whether ethnic differences in the use of Pap screening were associated with differences in cultural views, controlling for demographic and access factors.

Methods: Cross-sectional survey data from the Commonwealth 2001 Health Care Quality Survey were used. Non-Hispanic White ($n = 2,146$) and Asian American women (including Chinese, Vietnamese, Korean, Filipino, and Japanese; $n = 259$) were included in this study. Eastern cultural views were measured by beliefs in the role of self-care and luck. Access factors (having health insurance, regular providers, and communication with providers) and demographics of patients and providers were measured. The outcome was receipt of a Pap test in the past 2 years.

Results: Asian American women had a lower rate of obtaining a recent Pap test (70%) than non-Hispanic White women (81%; $P = 0.001$). More Asians believed in the role of luck and self-care and experienced access barriers than Whites ($P < 0.0001$). Women with less Eastern cultural views are more likely to be recently screened than women with more (odds ratio, 1.08; 95% confidence interval, 1.00-1.16; $P < 0.05$). All access factors and provider gender types predicted the outcome. Within the Asian subgroups, Vietnamese women had lower screening rates (55%) and greater Eastern cultural views than their Asian counterparts.

Conclusion: More research is needed to understand cultural and other barriers to Pap screening in high-risk Asian women, and attention should be paid to within-group differences. (Cancer Epidemiol Biomarkers Prev 2008;17(8):1968-73)

Introduction

Asian and Pacific Islander women have significantly higher cervical cancer mortality than non-Hispanic White women (1). Although cervical cancer is preventable with regular Pap tests (2), Asian American women have the lowest rates of Pap screening among all U.S. ethnic groups (3, 4).

Asian American women seem to experience similar barriers to Pap screening as other minority groups such as inadequate knowledge and lack of sources of usual care (5, 6). However, given that 69% of Asian Americans are foreign born (7), they are likely to experience unique linguistic and cultural barriers to Pap screening (5, 6, 8). Prior research shows that Asians have different views

and practices in health care than Whites (9). For example, traditional Chinese stress taking care of one's own health over medical checkups (self-care) and believe that illness is a result of personal fate or luck (10, 11). Such cultural views are associated with nonadherence to cancer screening in Chinese American women (10, 12). Yet, these views do not seem to be as salient for cancer screening behavior among White women. Thus, understanding the role of culture is important for reducing disparities in cancer screening (13).

Little is known about whether differences in cervical cancer screening rates between Asian American and non-Hispanic White women are related to differences in culturally shared beliefs. This study used national data from the Commonwealth 2001 Health Care Quality Survey to examine the hypotheses that Asian American women are more likely to hold beliefs about self-care and luck than non-Hispanic White women and that these views are associated with ethnic differences in Pap use.

Materials and Methods

Data Source. The Commonwealth 2001 Health Care Quality Survey investigated the quality of health care across different ethnic groups including Whites, Blacks,

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Table 1. Variations in Pap use, demographic, access factors, and cultural beliefs among Asian subgroups

Variables	Chinese	Vietnamese	Korean	Filipino	Japanese	P*
	n = 110	n = 22	n = 23	n = 77	n = 27	
Having a Pap test ≤ 2 y, %	71	55	48	81	82	0.008
Age (y), %						0.310
18-39	54	68	52	42	50	
40-49	19	9	26	32	19	
≥ 50	27	23	22	26	31	
College educated %	82	64	78	93	78	0.014
Married %	62	55	74	64	56	0.651
Language of interview, %						<0.0001
English	79	64	52	100	100	
Non-English	21	36	48	0	0	
Birthplace, %						<0.0001
U.S. born	27	0	9	17	56	
Foreign born	73	100	91	83	44	
Insured %	93	73	65	87	100	<0.0001
Length of stay in the United States (y), %						0.346
≤ 10	25	24	22	26	7	
> 10	75	76	78	74	93	
Having a regular provider %	76	59	65	82	82	0.151
Health status, %						0.023
Excellent/very good	51	23	30	49	63	
Good/fair/poor	49	77	70	51	37	
Communication with providers, %						0.070
Poor	29	39	43	22	11	
Non-poor	71	61	57	78	89	
Eastern cultural views [†]						0.010
Mean	4.80	4.45	5.36	5.27	5.81	
SD	1.47	1.50	1.47	1.86	1.57	

* P values were based on χ^2 tests for categorical variables or the Fisher exact tests if the frequency of a cell is < 5 such as language of interview. The mean score on the Eastern cultural scale was based on the *t* tests.

[†] Scale scores ranged from 2 to 8, where the lowest scores indicated the most "Eastern" views of care (i.e., greater beliefs in the role of self-care and luck) and the highest scores indicated a more "Western" view.

Latinos, and Asians. U.S. adults 18 years and older were selected to complete a telephone interview using the random-digit dialing method; methods have been described elsewhere (14). The response rate of the overall sample was 54.3%.

Study Sample. The final study unweighted sample consisted of 2,146 non-Hispanic White and 259 Asian American women (including 110 Chinese, 77 Filipino, 23 Korean, 22 Vietnamese, and 27 Japanese). Most Asian American women were interviewed in English, except for 23 interviewed in Mandarin/Cantonese, 8 in Vietnamese, and 11 in Korean.

Study Variables. The outcome was based on the question: "Did you have a Pap test?" (within 1 years, 1-2 years, 3-5 years, ≥ 5 years ago, or never). Based on the Pap screening recommendation and the time of the survey, we defined recent screening as having a Pap test within 2 years (versus > 2 years or never).

Cultural views refer to "belief systems and values that are shared by a population of people" (15). Although there are language and cultural differences among Asians, there are common attitudes toward health care such as beliefs in the role of self-care and luck, and these are more salient to Asians than Whites (5, 16). We thus defined these shared views as Eastern cultural views. Eastern views were measured by two items: (a) "I think staying healthy is a matter of *luck* more than anything else" and (b) "It is generally better to take care of your own health than to go to the doctor" (self-care); each item was scored on a Likert scale from 1, representing

"strongly agree," to 4, representing "strongly disagree." These two items are similar to items included in a validated Asian cultural scale (10). The two items were correlated at 0.13 for the whole population ($P < 0.000$) and 0.20 for Asians ($P = 0.002$). The luck and self-care items were each strongly correlated with the total item scores ($r = 0.76$ and $r = 0.75$, respectively), indicating a high internal consistency. In short, Eastern cultural views are a sum score on the two items (low mean scores indicated more Eastern views).

Access factors included having health insurance and a regular provider (yes/no), ethnicity/gender concordance between patients and providers, and communication with providers (poor/non-poor). Women who had the same gender type or ethnic identity as their providers were considered concordant (versus discordant versus unknown). Women without a regular provider were coded in the "unknown" category. Demographics including education ($< \text{college}$ versus $\geq \text{college}$), age (18-39 versus 40-49 versus 50+), marital status (married versus single/divorced/widow), birthplace (U.S. born versus foreign born), health status (excellent/very good versus good/fair/poor), and language of interview (English versus non-English) were assessed. Age was divided into three levels to capture the differential age distribution of Asians and Whites.

Data Analysis. We aimed to examine the associations between cultural views and Pap screening in general. Thus, we used unweighted data to run regression analysis to test our hypotheses as recommended by the Commonwealth methodology report (14). We aggregated Asian

groups for hypothesis testing due to the limited number of respondents in some subgroups. We used χ^2 tests and *t* tests to examine differences in variables within the Asians and between Asian American and non-Hispanic White women. Only significant differences between the groups were included in multivariate logistic regression models. The first logistic model included demographic, ethnicity, and health status variables. Second, to examine whether cultural and access factors affected the association of ethnicity with Pap screening, we tested these explanatory variables separately in model 2, adjusting for variables in model 1. In model 3, all variables were combined and simultaneously tested as the final model. Variables including language of interview and birthplace were not included in the multivariate analysis due to their strong correlations with the ethnic term. Finally, to assess post hoc associations between gender/ethnicity concordance and Pap screening, we reran the final model. However, because the concord variable includes, by

definition, whether women have a regular provider, this latter variable was not included in the model. We used SPSS 16.0 version to run all the analyses.

Results

In bivariate analysis, we found substantial variations in screening rates and beliefs within Asian subgroups as displayed in Table 1. Vietnamese (55%) and Koreans (48%) had lower rates of recent Pap screening than Filipinos (81%), Japanese (81%), and Chinese (71%). Vietnamese and Chinese were more likely to hold Eastern views than other Asians.

On average, Asian American women were less likely than non-Hispanic White women to obtain recent Pap screening (71% versus 80%, $P = 0.001$; Table 2). Asians were more likely to hold Eastern cultural views than Whites ($P < 0.0001$). Although Asian respondents were younger ($P < 0.0001$) and

Table 2. Differences between Asian American and Non-Hispanic White Women

Variables	Non-Hispanic Whites (<i>n</i> = 2,146)	Asian Americans (<i>n</i> = 259)	<i>P</i> *
Pap screening, %			
>2 y or never	20	29	0.001
≤2 y	80	71	
Age (y), %			
18-39	34	51	<0.0001
40-49	21	23	
≥50	45	26	
Education, %			
<College	41	17	<0.0001
≥College	60	83	
Marital status, %			
Married	54	62	0.012
Nonmarried	46	38	
Language of interview, %			
English	99.9	84	<0.0001
Non-English	0.1	16	
Birthplace, %			
U.S. born	93	23	<0.0001
Foreign born	7	77	
Health insurance, %			
Yes	92	88	0.023
No	8	12	
Having a regular provider, %			
Yes	85	76	<0.0001
No	15	24	
Health status, %			
Excellent/very good	59	47.5	0.001
Good/fair/poor	41	52.5	
Communication with providers, %			
Poor	16	27	<0.0001
Non-poor	84	73	
Provider gender type, %			
Male	54	39	<0.0001
Female	31.5	37	
Unknown	15.5	25	
Patient-provider ethnic concordance, %			
Concordance	67	39	<0.0001
Discordance	15	33	
Unknown [†]	19	28	
Eastern cultural views [‡]			
Mean	5.92	5.07	<0.0001
SD	1.57	1.64	

**P* values were based on χ^2 tests for categorical variables or the Fisher's exact tests if the frequency of a cell is <5 such as language of interview. The mean score on the Eastern cultural scale was based on the *t* tests.

[†]"Unknown" indicates those who lacked sources of usual care and those who did not respond to the question.

[‡]Scale scores ranged from 2 to 8, where the lowest scores indicated the most "Eastern" views of care (i.e., greater beliefs in the role of self-care and luck) and the highest scores indicated a more "Western" view.

Table 3. Adjusted ORs of having a recent Pap test (≤ 2 vs > 2 y or never)

Variable	Model 1	Model 2				Model 3
		Model 1 + culture	Model 1 + insurance	Model 1 + having a provider	Model 1 + communication	
OR (95% CI)						
Demographic						
Age (y)						
40-49 (vs 18-39)	0.78 (0.54-1.12)	0.78 (0.54-1.12)	0.78 (0.54-1.12)	0.75 (0.52-1.08)	0.77 (0.53-1.11)	0.75 (0.52-1.09)
≥ 50 (vs 18-39)	0.47 (0.35-0.62)	0.48 (0.36-0.63)	0.43 (.32-.57)	0.44 (0.33-0.58)	0.45 (0.34-0.60)	0.41 (0.30-0.54)*
Education: \geq college (vs <college)	1.61 (1.23-2.06)	1.56 (1.22-2.00)	1.59 (1.24-2.03)	1.60 (1.25-2.05)	1.62 (1.27-2.08)	1.57 (1.22-2.01)*
Marital status: married (vs nonmarried)	2.30 (1.80-2.92)	2.30 (1.81-2.92)	2.24 (1.76-2.85)	2.26 (1.77-2.88)	2.31 (1.82-2.95)	2.24 (1.76-2.86)*
Ethnicity: NHW (vs Asians)	2.38 (1.67-3.41)	2.19 (1.53-3.16)	2.38 (1.66-3.41)	2.30 (1.60-3.30)	2.29 (1.60-3.28)	2.09 (1.45-3.02)*
Health status: excellent/very good (vs good/fair/poor)	1.90 (1.50-2.42)	1.90 (1.49-2.42)	1.82 (1.43-2.32)	1.92 (1.51-2.44)	1.81 (1.42-2.31)	1.77 (1.39-2.27)*
Eastern cultural views [†]	—	1.10 (1.02-1.18)	—	—	—	1.08 (1.00-1.16) [‡]
Access factors						
Having health insurance (vs no)	—	—	2.03 (1.38-2.99)	—	—	1.70 (1.14-2.54) [§]
Having a regular provider (vs no)	—	—	—	2.01 (1.48-2.74)	—	1.74 (1.27-2.40) [§]
Good communication with providers (vs poor)	—	—	—	—	1.61 (1.21-2.16)	1.47 (1.09-1.97) [‡]
Provider characteristics						
Female (vs male)	—	—	—	—	—	1.83 (1.36-2.48)*
Ethnic concordance (vs discordance)	—	—	—	—	—	0.95 (0.49-1.83)

NOTE: Dashed lines indicate that the variable was not included in the tested model.

Abbreviation: NHW, non-Hispanic White.

* $P < 0.001$.[†] A sum score on the luck belief and self-care items; high scores mean less Eastern cultural views.[‡] $P < 0.05$.[§] $P < 0.01$.^{||} The results were based on a post hoc multivariate analysis after we found that having a regular provider predicted the outcome. In the post hoc, gender and ethnic concordance were added to the third model after removing the variable of having a regular provider to avoid the multicollinearity. Women without a regular provider and responses to the questions were coded unknown. The comparisons between unknown and other categories were not shown here. The ORs of the association between Eastern cultural views and the outcome were not changed in the post hoc analysis.

more likely to be married ($P < 0.01$) and college educated ($P < 0.0001$), they were also more likely to report having poor health ($P < 0.001$), poor communication with providers ($P < 0.0001$), and lack of health insurance ($P < 0.05$) and a regular provider ($P < 0.0001$) than White respondents.

Results from logistic regression analysis (Table 3) indicated that after adjusting for demographic and health status confounders, non-Hispanic White women were twice as likely to be recently screened as Asian American women [odds ratio (OR), 2.09; 95% confidence interval (95% CI), 1.45-3.02]. Eastern cultural views independently predicted recent Pap screening; every 1-point decrease in Eastern views was associated with an 8% increased likelihood of Pap use (OR, 1.08; 95% CI, 1.00-1.16). Additionally, the odds of having recent Pap screening were 1.74-fold (95% CI, 1.27-2.40) higher for women reporting to have a regular provider than women without. Women who experienced good communication with their providers had 1.47-fold higher odds (95% CI, 1.09-1.97) to be recently screened. Having a female provider had ~2-fold greater odds of being recently screened than having a male provider (OR, 1.83; 95% CI,

1.36-2.48). Race concordance was not a predictor after controlling for covariates.

Importantly, cultural views, but not individual access factors, attenuated the association between ethnicity and Pap screening, suggesting that having a less Eastern cultural view narrowed the screening gap between Asian American and non-Hispanic White women (Table 3). There were no significant interactions between cultural and access variables and ethnicity.

Discussion

Disparities in cervical cancer screening between Asian American and non-Hispanic White women persist even after considering all cultural and access factors. Our results suggest that Eastern cultural views may help explain this variation in Pap screening. Specifically, Asian American women with stronger beliefs in the role of self-care and luck are less likely to receive timely Pap tests compared with non-Hispanic White women. Although a proportion of non-Hispanic White women are likely to hold similar beliefs to their Asian counterparts, the operational definition of the concepts may differ

between the two groups. For example, the Eastern views of luck emphasize good fortune that is based on repayment of one's good deeds (17). On the other hand, luck in the Western culture is generally viewed as a chance outcome. Such conceptual variation may also appear in other correlates of cancer control behaviors among minority women, such as fatalism, self-care, and spirituality (5, 18). Formative research that investigates specific meanings of these cultural concepts is needed to develop valid measures that can be used across various racial and ethnic groups.

Although our results extend previous findings that Eastern views are associated with cancer screening behavior among Chinese women (10, 12), we are not suggesting that Eastern cultural views must be diminished to promote adherence to cancer screening in Asians. In contrast, understanding Eastern cultural views is one avenue to facilitating effective communication with Asian Americans about the benefits of cancer screening and further promoting their behavioral response to regular cancer screenings.

Similar to prior research (6), our results also indicate that there are disparities in access to care, and that modifies ethnic effects on Pap screening. In addition to lack of health insurance and regular providers, Asian American women are more likely to experience poor communication with their providers than non-Hispanic White women. Prior research shows that Asians are less satisfied with their providers than Whites after controlling for patient-provider race and language concordances (19). Compared with Whites, Asians feel much more often that their providers did not listen and understand their cultural background, and they did not involve them in medical decisions. These poor experiences might deter their participation in future Pap screenings. Further, our results confirm that both Asian American and non-Hispanic White women are more likely to undertake Pap screening when their providers are females (20, 21).

Several limitations should be considered when interpreting our results. First, our measures of cultural beliefs were based on two items, which do not capture other cultural domains that explain Asians' screening behaviors such as modesty and fatalism (5, 10, 13). This may have moderated our findings about the association between cultural views and Pap use. In addition, as noted in Table 1, most of the Asian sample (>60%) was highly acculturated, proficient in English, and had lived in the United States for more than 10 years, limiting our ability to generalize the results to other less acculturated or recently immigrated Asian groups. The gap in screening rates is expected to be greater than the 9% difference in this study when compared with less acculturated groups. Nevertheless, the screening rates shown in this study are similar to the national, population-based reports (i.e., 80% for Whites and 68% for Asians; refs. 22, 23). Second, because of the limited number of Asian respondents, we were not able to conduct analyses stratified by subgroups. Instead, we present the heterogeneous characteristics of the Asians in Table 1. It is possible that cultural barriers to Pap screening may be more pronounced for some Asians such as Vietnamese and Chinese women than for other Asians such as Japanese women because most of the latter were raised in the United States.

Overall, our results suggest the needs to develop educational interventions that address cultural barriers among Asian American women and to provide culturally competent care like a Pan Asian Clinic that reduces their access barriers. It is also essential to educate medical providers to recognize cross-cultural differences in health care to enhance their competence in engaging with minority women during medical encounters (24). Few culturally tailored interventions have been developed and disseminated across Asian subgroups (25). Considering the variations between Asian subgroups, it is very possible that one intervention tool may not suit all Asians. This is the first study that we are aware of investigating the effect of specific cultural beliefs on Pap screening behavior between Asian American and non-Hispanic White women. To successfully target group-specific barriers, more studies on cultural and access issues within Asian subgroups can effectively direct our cancer control efforts to promote overall participation in cervical cancer screening.

Disclosure of Potential Conflicts of Interest

No potential conflicts of interest were disclosed.

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