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Cervical Cancer Screening: Attitudes and Behaviors of Young Asian American Women

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Abstract

Compared to other racial/ethnic groups, Korean, Filipino, and Vietnamese American women experience high incidence rates of cervical cancer but low rates of cervical cancer screenings. This study examines the behaviors and attitudes towards screening in young Korean, Filipino, and Vietnamese American women ($n=304$) in the San Francisco Bay Area. Results indicated Vietnamese American ($OR=2.51$) and Filipino American ($OR=2.31$) women had greater odds of ever having a Pap test than Korean American women. Those older ($OR=1.55$), born in the USA ($OR=2.64$), and those comfortable with the test ($OR=3.41$) also had greater odds of ever having a Pap test. Correct knowledge of cervical cancer and the human papillomavirus did not significantly affect the odds of having a Pap test. Interventions to increase Pap testing in these populations should focus on increasing levels of comfort and should target those younger and foreign born.

Keywords

Cervical cancer screening; Pap testing; Young Asian American women; Korean; Vietnamese; Filipino; San Francisco

Introduction

Cancer is the second most common cause of death in the USA [1, 2], in addition to being the number one cause of death for Asian American women [3]. While Asian American women, as a whole, have the lowest cervical cancer incidence rate of any group [4], specific subgroups, such as Vietnamese and Korean, continue to suffer shockingly higher incidence rates when compared to other ethnicities, including whites [5, 6]. With an estimated 12,200 newly diagnosed cases of invasive cervical cancer, and 4,210 deaths in 2010 [7], it is imperative to continue examining knowledge and screening behaviors of Asian American subgroups to prevent the onset of cervical cancer within such groups. In addition, existing research on knowledge and screening behaviors of young women has primarily focused on young white women [8], while research on young Asian American women has been extremely limited [9]. Thus, the purpose of the following study is to investigate and understand subgroup differences in cervical cancer screening behavior of young Asian American women in the San Francisco Bay Area.

Incidence Rates

Asian Americans continue to disproportionately share the burden of cervical cancer. Research has indicated that Vietnamese, Korean, and Filipino women had the highest incidence rates from cervical cancer compared to whites [5, 6] and other Asian American subgroups [5, 10]. Unfortunately, past and current research studies [11] have continued to aggregate numerous Asian American groups, yielding loss of data in Asian subgroup variability. Understanding such differences in subgroups can lead to the interventions that increase cervical cancer screening.

Disparities in Cervical Cancer Screening

The American College of Obstetricians and Gynecologists recommends screening to start at age 21, against screening of adolescents, and for women over 30 to be screened every 2 years unless they have received three consecutive negative results [12]. Despite these recommendations, disparities in cervical cancer screening between Asian American women and other races have continually been documented in numerous studies [4, 13-16].

In the USA, 75% of women had a Pap test within the past 3 years [3]; however, one study found that 68% of Vietnamese women received Pap testing in the last 3 years [17], while another found that younger Vietnamese American women were more likely to never have been screened compared to those who were older [18]. For Korean American women, one study found that 34% of Korean American women, ages 18 or older, have not had a Pap test within the past 3 years [19]. Similar to Vietnamese American women, younger Korean American women were also less likely to never have been screened compared to those who were older [18].

Data on Filipino American women from the California Health Interview Survey showed that only 14% of Filipino American women failed to receive a Pap test within the past 3 years [19]. Between these three groups, the same survey found that Filipino American women were less likely to have never been screened compared to Korean and Vietnamese women.

Barriers to Screening—There are a multitude of reasons as to why there exists such a disparity in screening behavior. For Vietnamese women, factors such as cervical cancer knowledge [17, 20], marital status [21], and health insurance [21] all affect screening behavior. Interestingly, studies examining Vietnamese and Korean American women [18, 22] have found similar results as well but also found that low income (less than US \$10,000/year) and being in the USA less than 15 years were significantly associated to never having been screened. Among Korean American women, other factors included transportation and English language proficiency [18], in addition to lack of health insurance, long working hours, and psychosocial barriers, such as a fear and discomfort [23]. Among Filipino American women, those in the USA less than 10 years, those not married, and those with less than a college education were more likely to not have had received a Pap test within the past 3 years [19].

Hypotheses—Despite advances in understanding cervical cancer screening barriers and the advent of a cervical cancer vaccine, cervical cancer screening in various Asian American subgroups remains low. Existing research shows that among Asian American women, the younger population faces even more disparities in cervical cancer screening [9, 18]. This paper focuses on young Vietnamese, Korean, and Filipino American women living in the San Francisco Bay Area and includes the following hypotheses:

Hypothesis 1	Among women aged 18–28 years old, the odds of Vietnamese and Filipino American women having had a Pap test are both respectively higher than for Korean American women.
Hypothesis 2	Among Korean, Vietnamese, and Filipino American women aged 18–28 years old, the odds of older women having had a Pap test is lower than for younger women.
Hypothesis 3	Among Korean, Vietnamese, and Filipino American women aged 18–28 years old, the odds of those born in the USA having had a Pap test are higher than those born outside of the USA.
Hypothesis 4	Among Korean, Vietnamese, and Filipino American women aged 18–28 years old, the odds of those with correct human papillomavirus (HPV) knowledge having had a Pap test are higher than those with incorrect HPV knowledge.
Hypothesis 5	Among Korean, Vietnamese, and Filipino American aged 18–28 years old, the odds of those with correct cervical cancer knowledge having had a Pap test are higher than those with incorrect cervical cancer knowledge.
Hypothesis 6	Among Korean, Filipino, and Vietnamese American aged 18–28 years old, the odds of those who were comfortable with the Pap test having had a Pap test are higher than those who were not comfortable with a Pap test.

Analysis was also run for each ethnic group as an exploratory study to examine differences in the needs of each group, although no formal hypotheses were formed.

Methods

Participants

The sample consisted of a purposive sample of collegeaged Korean American, Vietnamese American, and Filipino American women in the San Francisco Bay Area. Due to the high rates of cervical cancer and the lack of data on knowledge and behavior in these three populations, they were selected as the study population.

The Institutional Review Boards at the University of California, Davis and San Francisco State University approved this study's protocol. Eligibility criteria for study subjects were the following: (1) women between the ages of 18 and 28 years old, (2) Korean American, Vietnamese American, and Filipino American, (3) able to read English, and (4) no prior history of cervical cancer or an abnormal Pap smear including conditions such as dysplasia, lowgrade squamous intraepithelial lesion, and high-grade squamous intraepithelial lesion in Fall 2003. Women with a prior history of abnormal Pap smear tests were excluded from this study. Young Filipino American, Vietnamese American, and Korean American women were recruited on college campuses through publicly available email lists, meetings, public gatherings, cafes, and courses throughout the San Francisco Bay Area. Eligible participants were informed of the voluntary nature of the study and provided written consent. They were then provided a survey either face to face or through mail. Participants who completed the consent form and survey were given a US \$10 movie ticket.

Measures

The researchers combined the following validated scales into a survey to determine if the receipt of a Pap test among Korean American, Vietnamese American, and Filipino American women differed significantly from each other. The questionnaire addressed the following: (1) sociodemographic variables, (2) knowledge of cervical cancer risk factors, (3) knowledge about HPV infection, and (4) use of cervical Pap smear screenings. HPV vaccination was unavailable at the time of study, and thus, participant knowledge of it was not tested. The sociodemographic variables included age, ethnicity, country of birth, and years in the USA. In terms of measuring knowledge about the HPV and attitudes about cervical cancer risk factors, an HPV Risk Factor Survey developed by researchers at the University of California, San Francisco was modified and adapted for the survey. This survey, a 17-item instrument, measured knowledge and beliefs about HPV and about other cervical cancer risk factors. For cervical cancer screening behavior, this measurement was modified and adapted from The Centers for Disease Control and Prevention Behavioral Risk Factor Surveillance System survey's module on women's health and focused on questions related to Pap smears, entailing a five-item questionnaire.

Analysis

Survey data were analyzed in SPSS. In order to test all six hypotheses, logistic regression was utilized to examine the relationship between Pap testing and various factors that included race, birthplace (in the USA versus foreign born), correct knowledge of cervical cancer, and correct knowledge of HPV. Since the age group ranged from 18 to 28, the dependent variable was set to whether they ever had a Pap test (0=No, 1=Yes). The independent variables were age (continuous), ethnicity (0=Korean, 1=Vietnamese, 2=Filipino), birthplace (0=Foreign born, 1=US born), correct knowledge of cervical cancer (0=No, 1=Yes), correct knowledge of HPV (0=No, 1=Yes), and whether comfort was a reason they did not receive a Pap test (0=Yes, 1= No). All comparison groups were set to the value of zero. The choice to set the Korean ethnic group as the comparison group was due to the interest of the researchers since all three groups have high incidence rates and low screening rates. Each hypothesis was answered utilizing this model to determine the odds ratio of the outcome—Pap testing. In addition, 95% confidence intervals were included in analysis. In order to conduct the exploratory analysis, all variables in the model remained the same except for participant ethnicity.

Results

In total, data were collected from 304 young Asian American women. Distribution of ethnicity was fairly even, with 100 Korean American women, 100 Vietnamese American women, and 104 Filipino American women. The average age of the sample was 20.82 years old, with approximately 60% of women born in the USA and 40% born outside of the USA. Lastly, 48% of the sample had a Pap test at least once in their lives while 52% have never had one.

Score tests indicated that the overall model, with all predictors, was significant, χ^2 (7, $N=301$)=70.75, $p<.001$. In addition, all individual predictors were significant in the score test, $p<.05$. Goodness of fit was established through the nonsignificant Hosmer-Lemeshow test, χ^2 (8)=7.09, $p>.05$. Lastly, while not perfectly capturing variance explained, the Cox and Snell and Nagelkerke R^2 indices explained 23.7% and 31.6% of the variance, respectively. Thus, the model was deemed acceptable.

Results indicated that ethnicity, age, birthplace, and comfort were all significant. The odds of Vietnamese American women ever having a Pap test, compared to not having one, was

improved by a factor of 2 ($OR=2.15$, $p=.023$) when compared to Korean American women. Also, the odds of Filipino American women ever having a Pap test, compared to not having one, was improved by a factor of 2 ($OR=2.31$, $p=.012$) when compared to Korean American women. Thus, hypothesis 1 was supported.

Please note that for hypotheses 2–6, the term “women” refer to young Asian American women. For every 1 year increase in age, the odds of women ever having a Pap test increased from 1.0 to 1.52. Put another way, for every 1 year increase in age, we predict a .420 increase in the log odds of Asian American women ever having a Pap test ($OR=1.55$, $p<.001$). Thus, hypothesis 2 was supported. The odds of women born in the USA ever having a Pap test, compared to not having one, was improved by a factor of 2 ($OR=2.64$, $p=.001$) when compared to those who were born outside of the USA. Thus, hypothesis 3 was supported. In the model, neither correct knowledge of HPV ($OR=1.63$, $p=.137$) nor correct knowledge of cervical cancer ($OR=2.14$, $p=.196$) was found to be significant. Thus, hypotheses 4 and 5 were not supported. Lastly, the odds of women who were comfortable with the Pap test and had a Pap test, compared to those who did not, was improved by a factor of 3 ($OR=3.41$, $p<.001$) when compared to those not comfortable with the test. Thus, hypothesis 6 was supported. All data pertaining to the hypotheses can be found in Table 1.

For the exploratory analysis, only significant findings are presented. For Vietnamese American women, age, birthplace, and comfort level were all significant ($p<.05$). Thus, they had increased odds of ever having had a Pap test, compared to not having one, as age increased, for those born in the USA and those that were comfortable with the test. For Korean American women, age and birthplace were significant ($p<.05$). Therefore, they had increased odds of ever having had a Pap test, compared to not having one, as age increased and for those born in the USA. Lastly, for Filipino American women, age and comfort level were significant ($p<.01$). They had increased odds of ever having had a Pap test, compared to not having one, as age increased and with those comfortable with the test. Details for this analysis can be found in Table 2.

Discussion

There exists a large disparity in cervical cancer screening among both specific Asian American subgroups [13–16] and young women [18]. In addition, there are certain areas in the USA more heavily populated with Asian Americans—the San Francisco Bay Area is one such place. The findings of this study provide insight into the cervical screening behavior of young Asian American living in the San Francisco Bay Area and can assist in developing culturally tailored interventions in this region.

In our study, both Vietnamese and Filipino American women ages 18–28 had greater odds of ever having had a Pap test than Korean American women, indicating a possible need for interventions geared towards this particular subgroup. This finding was not surprising as a recent study [18] has found that as many as over half of Korean American women in this age bracket (up to 39) continue not to get screened, and qualitative studies have indicated gender-specific beliefs about modesty continue to pose barriers to screening [9]. Furthermore, older Asian American women in these subgroups had greater odds of being screened as well, indicating a need to focus on those in their teens and early twenties. Unfortunately, this study did not examine age of sexual onset for participants—such data could explain the increased odds of those older being screened as the ACS guidelines for screening at this time was 3 years after the onset of intercourse and annually after that [24]. Birthplace was also significant, suggesting that interventions require greater focus towards those who are not from the USA.

Interestingly, both HPV and cervical cancer knowledge were found to be nonsignificant. This finding is opposite to those of past studies [17, 20], indicating the possibility that, for young Asian American women, having correct knowledge about cervical cancer may not be enough for them to get screened, particularly since other changes in their lives may take precedence.

Lastly, whether young women were comfortable with receiving a Pap test was found to be significant. Those who did not cite comfort as a reason for not getting a Pap test had greater odds of having a Pap test. Thus, making young women comfortable with the test, possibly by going over the procedure in depth, could increase screening for young Asian American women.

When the analysis was conducted with each Asian American subgroup separately, there existed contrasts to what increased the odds of ever having a Pap test. For young Korean American women, both age and birthplace were significant, indicating the need to focus more on those in their late teens and early twenties as well as those not born in the USA. For young Vietnamese American women, age, birthplace, and comfort were all significant factors. Therefore, interventions should be focused on comfort level in addition to targeting those who are younger and not from the USA. Lastly, for young Filipino American women, age and comfort were the significant factors, suggesting a need for interventions directed toward making younger women feel more comfortable about acquiring a Pap test.

Limitations

While this study sheds light on young Asian American women and cervical cancer screening, which is often lacking in the research literature, it has various limitations. First, while the variable of birthplace was tested (i.e., born in the USA or outside of the USA), it does not provide additional insight into why those born outside of the USA had lower odds of being tested, such as less knowledge on the topic or lack of awareness of Pap testing in general. Second, the confidence interval for the logistic regression on the “Comfort with Pap test” variable can be considered somewhat wide, and thus, its results should be interpreted with caution. However, with any medical procedure, like Pap testing, it is important for health care providers to help individuals feel comfortable with the procedure. Lastly, while one of the strengths of this paper involved examining a highly dense population of Asian Americans in the USA, it also serves as a limitation. Because we focused on the San Francisco Bay Area, our results may not be so readily transferrable to other populations in which these subgroups are sparser.

Implications

There are numerous implications for this study. There is a growing need to develop interventions for young Asian American women. Our study demonstrates that factors such as race, age, birthplace, and comfort level with Pap testing all affect the odds of someone getting screened or not. Interventions should focus on the population that they wish to serve. Those in the San Francisco Bay Area should develop effective interventions for young Asian American women, with a particular emphasis on Korean Americans. Intervention programs can also differ in their focus depending on whether they are treating multiple subgroups collectively or one subgroup at a time. For instance, if they are treating a mix of young Korean, Vietnamese, and Filipino American women, they should concentrate on those that are younger (i.e., late teens, early twenties), born outside of the USA, and those not comfortable with Pap testing.

Future Direction

Examining and understanding cervical cancer screening behaviors of young Asian American women is an area that warrants further studies. Even with the advent of a cervical cancer vaccine, promoting screening in communities is vital for multiple reasons. First, the vaccine is not as effective for women who are already sexually active and may have been infected by an HPV strain that vaccine covers. Second, cervical cancer screenings still remain one of the most effective ways of preventing cervical cancer [12]. Therefore, cervical cancer screenings still remain an important preventative tool that should be continually encouraged especially for young Filipino, Korean, and Vietnamese American women, who are populations at high risk for cervical cancer. Future intervention research should continue to examine ways to increase screening in these populations.

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Table 1

Logistic regression statistics of Pap testing model

	β	SE of β	Odds ratio (e ^B)	95% CI
Ethnicity ^a				
Korean	-	-	-	-
Vietnamese	.765	.337	2.15*	1.11–4.16
Filipino	.838	.333	2.31*	1.20–4.44
Age	.420	.070	1.52***	1.33–1.75
Birthplace ^b	.971	.303	2.64**	1.46–4.78
Correct HPV knowledge ^c	.489	.329	1.63	.856–3.11
Correct cervical cancer knowledge ^c	.761	.588	2.14	.675–6.78
Comfort with Pap test ^d	1.23	.322	3.41***	1.81–6.41

Dependent variable of Pap testing model: If participant ever had a Pap test

*
 $p < .05$ **
 $p < .01$ ***
 $p < .001$ ^aReferent category is Korean (Korean=0, Vietnamese=1, Filipino=2)^bBorn outside USA=0, born in USA=1^cNo=0, yes=1^dYes=0, no=1

Table 2

Logistic regression statistics of Pap testing separated by ethnicity

	β	SE of β	Odds ratio (e ^B)	95% CI
Korean American women				
Age	.462	.128	1.59***	1.24–2.04
Birthplace ^a	1.12	.557	3.07*	1.03–9.13
Correct HPV knowledge ^b	.523	.579	1.69	.542–5.25
Correct cervical cancer knowledge ^b	1.97	1.19	7.19	.695–74.32
Comfort with Pap test ^c	.757	.582	2.13	.581–6.68
Vietnamese American women				
Age	.374	.112	1.45**	1.17–1.81
Birthplace ^a	1.08	.510	2.95*	1.09–8.02
Correct HPV knowledge ^b	.784	.633	2.19	.634–.57
Correct cervical cancer knowledge ^b	.224	.828	1.25	.247–.634
Comfort with Pap test ^c	1.25	.548	3.49*	1.19–10.22
Filipino American women				
Age	.482	.137	1.62***	1.24–2.12
Birthplace ^a	.750	.535	2.12	.742–6.04
Correct HPV knowledge ^b	.113	.551	1.12	.380–3.30
Correct cervical cancer knowledge ^b	-.033	1.49	.967	.052–17.98
Comfort with Pap test ^c	1.53	.583	4.59**	1.46–14.41

Dependent variable of Pap testing model: If participant ever had a Pap test

*
 $p < .05$ **
 $p < .01$ ***
 $p < .001$ ^a Born outside USA=0, born in USA=1^b No=0, yes=1^c Yes=0, no=1