Health Beliefs Associated with Cervical Cancer Screening Among Vietnamese Americans

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Abstract

Background: Vietnamese American women represent one of the ethnic subgroups at great risk for cervical cancer in the United States. The underutilization of cervical cancer screening and the vulnerability of Vietnamese American women to cervical cancer may be compounded by their health beliefs.

Objective: The objective of this study was to explore the associations between factors of the Health Belief Model (HBM) and cervical cancer screening among Vietnamese American women.

Methods: Vietnamese American women ($n=1,450$) were enrolled into the randomized controlled trial (RCT) study who were recruited from 30 Vietnamese community-based organizations located in Pennsylvania and New Jersey. Participants completed baseline assessments of demographic and acculturation variables, health care access factors, and constructs of the HBM, as well as health behaviors in either English or Vietnamese.

Results: The rate of those who had ever undergone cervical cancer screening was 53% (769/1450) among the participants. After adjusting for sociodemographic variables, the significant associated factors from HBM included: believing themselves at risk and more likely than average women to get cervical cancer; believing that cervical cancer changes life; believing a Pap test is important for staying healthy, not understanding what is done during a Pap test, being scared to know having cervical cancer; taking a Pap test is embarrassing; not being available by doctors at convenient times; having too much time for a test; believing no need for a Pap test when feeling well; and being confident in getting a test.

Conclusion: Understanding how health beliefs may be associated with cervical cancer screening among underserved Vietnamese American women is essential for identifying the subgroup of women who are most at risk for cervical cancer and would benefit from intervention programs to increase screening rates.

Introduction

THE VIETNAMESE COMMUNITY IN THE UNITED STATES has grown significantly during the last decade. The population reached 1,548,449 in 2010, a 38% increase from 2000, and is now the fourth largest among Asian American communities in the United States.¹ Compared with other Asian American subgroups and the general U.S. population, Vietnamese Americans are more likely to have limited English proficiency, high levels of poverty, lower rates of health insurance coverage, and lower levels of knowledge about general health and the American healthcare system.²⁻⁵

Vietnamese Americans also face substantial health disparities. Vietnamese American women represent one of the ethnic subgroups at great risk for cervical cancer in the United

States,⁶ yet few data are available with respect to developing culturally appropriate and acceptable intervention strategies to reduce this disparity. Early national data reported that Vietnamese American women were diagnosed with cervical cancer at a rate 5 times higher than the white female population of the United States.⁷ Vietnamese American women aged 55 to 65 years have a cervical cancer rate 10 times higher than that of white women of the same age in the United States.⁸ Recent data indicate that the cervical cancer incidence rate is 16.8% among Vietnamese American women, more than double the rate of 8.1% among non-Hispanic white women in the United States.⁹

Despite the proven benefits of Pap tests in the early detection of cervical cancer, studies across the United States show that Vietnamese Americans report lower usage of Pap testing

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than other population subgroups.^{10–12} Most studies of Vietnamese American women's cervical cancer screening in the 1990s indicated that fewer than 50% of women ever had a Pap test.^{13–16} The screening rates have increased since 2000—due in part to public health efforts to meet the Healthy People 2000 goal—ranging from 55% to 76%.^{2,11–12,17–24} However, the screening rates were still far lower than that of the general American population. The Commonwealth 2001 Health Care Quality Survey reported a rate of 55% for obtaining a recent Pap test among Vietnamese American women, lower than the overall rates among Asian American women (70%) and non-Hispanic white women in the United States (81%).¹²

The factors contributing to poor screening are complex and not well-understood,²⁵ but have been broadly summarized into three categories: (1) lack of knowledge and misinformation about cervical cancer; (2) psychosocial beliefs about cervical cancer and perceived barriers to screening; and (3) structural barriers to healthcare access.²⁶ Common barriers to Pap testing in the general population have included fear, embarrassment, cost, transportation, communication, lack of health care provider referral, and lack of time.²⁷ While Vietnamese American women have reported similar barriers to screening, studies have identified additional barriers that included unmarried marital status, younger age, lower level of education, living in the United States for less than 15 years, lack of insurance coverage, limited English language proficiency, limited knowledge about cervical cancer and benefits of Pap tests, and lack of female physicians.^{17,22–23,25,28–30}

While the association between knowledge and structural barriers with screening behavior has been well documented, there is a growing interest in exploring traditional cultural values and health beliefs about sexual behavior, fatalism, and concepts of preventive health and identifying the role that these values and beliefs play in women's decisions and behaviors with regard to cervical cancer screening.^{12,24,31} A review of the studies examining sociocultural factors that influence cervical cancer screening among immigrant and ethnic minorities in the United States indicated that commonly held beliefs across several cultural groups including fatalistic attitudes, a lack of knowledge about cervical cancer, fear of Pap smear threatening one's virginity, as well as a belief that a Pap smear is unnecessary unless one is ill.²⁵ Asian immigrants in the United States, including Vietnamese Americans, held a variety of misconceptions concerning one's susceptibility to cervical cancer as well as stigmatization imposed by their own community and health care providers.²⁵ It has also been reported that the stigma associated with extramarital sexual activity in Vietnamese culture may deter unmarried women from getting Pap smears.¹⁸

These beliefs may increase or decrease the likelihood that screening will occur. Various theories have been used to explain the psychological determinants of behavior in order to guide the development and refinement of health promotion programs.³² For example, as delineated by the Health Belief Model (HBM),³³ the likelihood that an individual will take action to prevent or detect disease is determined by several factors: perceived vulnerability to the health condition, perceived severity of the health threat, perceived benefits of performing the health behavior, and perceived costs and barriers of performing this behavior.³³ Later on, self-efficacy was added to HBM to measure the belief in one's own ability to perform a certain behavior.³⁴ The HBM was originally devel-

oped as a systematic method to explain and predict preventive health behaviors and is still one of the most widely used conceptual frameworks of health behavior.³⁵

Prior studies using the HBM as a framework have typically found it to be useful in predicting who will undertake a variety of health behaviors, such as breast cancer screening,^{36–39} However, empirical evidence regarding the application of HBM constructs to predict cervical cancer screening remains scant. A literature review of the few published studies revealed strong support for the HBM's perceived benefit and barrier constructs, but relatively weak support for the HBM's perceptions of the disease construct in predicting cervical cancer screening behavior.³⁹

Building on our prior findings of low rates of cervical cancer screening among Vietnamese women living in the Greater Philadelphia region,² we conducted a cervical cancer intervention trial among Vietnamese American women. The aim of this intervention trial was to increase cervical cancer screening rates and to reduce barriers to accessing the health system among medically underserved and low-income Vietnamese American women. This randomized controlled trial (RCT) is a 5-year study conducted at 30 Vietnamese community organizations in Pennsylvania and New Jersey. The intervention trial, guided by a conceptual framework derived from the HBM and Social Cognitive Theory (SCT), addresses both individual health beliefs and healthcare system barriers.

The purpose of this article is to present the baseline data from this RCT in order to explore and identify culturally determined beliefs and attitudes that are related to cervical cancer screening among Vietnamese American women using items from HBM constructs. We expect that these identified items can be taken into consideration for future development of culturally appropriate and acceptable intervention strategies that would lead to reducing the cervical cancer disparity among Vietnamese American women. We hypothesize that Vietnamese American women may perceive a low risk of cervical cancer, multiple barriers to accessing screening programs, uncertain benefits of screening, as well as low confidence (self-efficacy) in dealing with the screening program. We hypothesize that these factors will be closely associated with cervical cancer screening among Vietnamese American women.

Methods

Study sites and participants

The Center for Asian Health has an enduring collaborative relationship with more than 250 Asian American organizations represented by the Asian Community Health Coalition (ACHC), a nonprofit 501(c)(3) umbrella organization established concurrently with the Center in 2000. The Vietnamese community-based organizations (VCOs) included in this study, as part of the ACHC, serve important social functions; they represent the ideal milieu for obtaining information on accessibility to needed health services. Their unique status in these communities underscores their importance as an ideal avenue for recruiting community-based participants for the study and intervention delivery. The range of female Vietnamese American members in the 30 organizations included in this study is between 80 and 2,500. The average age of members is 52 years and ranged from 20 years to 70 years. Vietnamese American community leaders were directly involved in the planning, development, and implementation of the project.

From 2008 to 2011, Vietnamese American women ($n=1,949$) were recruited from 30 participating community-based Vietnamese American community organizations and assessed for study eligibility. Women were recruited in person, using informational fliers and community organization leadership engagement. Of the total recruited and assessed, 1,518 women met the inclusion criteria of self-identified Vietnamese identity; aged 18 to 70 years; had not had a Pap test during the previous 12 months; and had not been diagnosed with cervical cancer. Of the total eligible women, 1450 consented, completed the baseline assessment, and are included in the data analysis for this article. The study was approved by the Temple University Institutional Review Board.

Data collection procedures

Prior to project implementation, community leaders and volunteers participated in training sessions focused on revisitation of project aims and their significance to Vietnamese women, recruitment strategies, and guidelines for administration of research instrument as well as data collection, accuracy, and confidentiality. All measures in English were translated, back-translated, and pretested in Vietnamese to ensure the scientific and cultural appropriateness of the instrument for community Vietnamese participants. The 20- to 30-minute baseline survey was provided in Vietnamese and English versions, and bilingual assistance was available at all sites. One hundred percent of study participants completed the survey in Vietnamese.

Measures

The measures collected at baseline assessment include: (1) demographics and acculturation; (2) healthcare access; (3) health behavior and Pap test history (i.e., ever had a prior Pap test); (4) perceptions related to Health Belief Model constructs; (5) knowledge, attitudes and beliefs of Vietnamese American women about cervical cancer; and (6) human papillomavirus (HPV)-related questions. These measures were validated in several of our previous studies.^{2,29,40–42} The association of demographic and acculturation characteristics; healthcare access barriers; HPV-related questions; and knowledge, attitudes, and beliefs about cervical cancer screening with ever having had a Pap test have been reported elsewhere.³⁰ For the purpose of this study, demographic information and acculturation, health behaviors, and HBM constructs were included in the analyses. The outcome measure was whether women reported having ever had a Pap test.

Demographics and acculturation. Demographic characteristics (e.g., age, education, and employment status) and acculturation level (e.g., English speaking/reading ability, preference for traditional foods, frequency of participation in Vietnamese cultural activities, birth place, time living in the United States, need for interpreters during medical visits, and frequency of speaking/reading native language, which served as proxy items to measure acculturation level) were assessed to delineate critical characteristics of the study population.

HBM constructs. Items assessing HBM constructs were adapted from Champion⁴⁵ for use with this population. Internal consistency, test-retest reliability, construct validity, and predictive validity of the HBM subscales have been reported in previous studies and our work. Prior studies indi-

cate the internal consistency of the subscales, as determined by Cronbach's alpha coefficients (ranging from 0.75 to 0.88), and 6-week test-retest reliability scores (ranging from 0.61 to 0.71)^{36–37,44} to be high. Confirmatory factor analyses supported the construct validity of each subscale with factor loadings ranging from 0.68 to 0.90 for the perceived susceptibility scale, 0.40 to 0.83 for the benefits scale, and 0.44 to 0.69 for the barriers scale. For the present study, the items were modified by replacing "mammography" with "cervical cancer" or "Pap test" where appropriate. In preliminary work, we pilot-tested the modified measures among 21 Vietnamese American women (mean age=50.43 years, standard deviation [SD]=13.78) to ensure that the items were meaningful. In this pilot study, Cronbach's alpha coefficients ranged from 0.74 (perceived severity) to 0.99 (self-efficacy), indicating that each subscale had good internal consistency. Similar to Champion,³⁶ we also collected data at two time points in order to assess test-retest reliability. All test-retest correlations were greater than 0.90 and significant at the 0.01 level. The following provides a description of each item within each subscale measured in our study. Responses to each item were scored on a five-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Perceived susceptibility of developing cervical cancer was assessed using two items: "I think I am at risk for getting cervical cancer" and "I am more likely than the average woman to get cervical cancer."

Perceived severity of the disease was assessed using three items e.g., "Most women who develop cervical cancer will die from it"; (Wording of the specific items is presented in Appendix A). Perceived benefits of undergoing cervical cancer screening were assessed using five items e.g., "A Pap test can detect cervical cancer in its early stages, when it is easier to treat and cure"; (Wording of the specific items is presented in Appendix A). In the present sample, Cronbach's alpha coefficient was 0.74 for perceived severity and 0.97 for perceived benefits, indicating high internal consistency.

Perceived barriers to screening were divided into two sections: (a) environmental barriers to healthcare; and (b) perceived psychosocial and structural barriers. Environmental barriers were reported elsewhere.³⁰ Perceived psychosocial and structural barriers to screening were assessed using 11 items e.g., "I am scared to have a Pap test because I might learn that I have cancer"; (Wording of the specific items is presented in Appendix A). Cronbach's alpha coefficient was 0.88 for perceived barriers.

Self-efficacy in obtaining screening was assessed using three items (e.g., "I feel capable of arranging to have a Pap test"; "Wording of the specific items is presented in appendix A"). These items were adapted and modified from established measures of health-related self-efficacy⁴³ to be relevant to cervical cancer screening. Cronbach's alpha coefficient was 0.99 for self-efficacy.

Internal consistency, test-retest reliability, construct validity, and predictive validity of the HBM subscales were reported in previous studies and our work. Prior studies indicate the internal consistency of the subscales, as determined by Cronbach's alpha coefficients (ranging from .75 to .88), and 6-week test-retest reliability scores (ranging from 0.61 to 0.71).^{36–37,44} Confirmatory factor analyses supported the construct validity of each subscale with factor loadings ranging from 0.68 to 0.90

for the perceived susceptibility scale, 0.40 to 0.83 for the benefits scale, and 0.44 to 0.69 for the barriers scale. In addition, we pilot-tested the proposed measures among 21 Vietnamese American women (mean age = 50.43 years, SD = 13.78). Cronbach's alpha coefficients ranged from 0.74 (perceived severity) to 0.99 (self-efficacy), indicating that each subscale had good internal consistency. Similar to Champion,³⁶ we also collected data at two time points in order to assess test-retest reliability. All test-retest correlations were greater than 0.90 and significant at the 0.01 level.

Statistical Analyses

A univariate logistic regression model was used to examine the association between the probability of ever having had a Pap test and each item from each subscale of HBM: the perceived risk, severity, benefits, and barriers related to cervical cancer and Pap test. The strength of association was expressed

as an odds ratio with a 95% confidence interval. Demographic variables were examined in similar analyses. To adjust for potential confounding between these variables and demographic variables, a logistic regression model was used for each variable adjusting for all demographic variables that are significantly associated with ever having had a Pap test. To examine whether each variable in a given group (e.g., perceived risk) is independently associated with ever having had a Pap test, a forward variable selection was used in a multivariate logistic regression adjusting for both other variables in this group and all significant demographic variables. All of data analyses were processed using SAS 9.2 (SAS Institute Inc., Cary, NC).

Results

At baseline, 53.03% (769/1,450) reported ever having had a Pap test. Several demographic variables were associated with prior screening (see Table 1). Specifically, women aged 17–40

TABLE 1. DEMOGRAPHIC CHARACTERISTICS AND THEIR INDIVIDUAL ASSOCIATION WITH THE PAP TEST

Demographic factors	Responses to the Pap test				Odds ratios			
	Yes		No		Single factors		Multiple factors by forward selection	
	n	%	n	%	Point estimate	95% CI	Point estimate	95%CI
Age structures	760	52.85	678	47.15	***		***	
> 60 years old	243	61.36	153	38.64	1.00	Reference	1.00	Reference
51–60 years old	218	56.92	165	43.08	0.83	0.63 ~ 1.11	0.63**	0.45 ~ 0.89
41–50 years old	166	53.90	142	46.10	0.74**	0.54 ~ 1.00	0.51***	0.35 ~ 0.74
17–40 years old	133	37.89	218	62.11	0.38***	0.29 ~ 0.52	0.26***	0.17 ~ 0.38
Education levels	738	53.40	644	46.60	***		***	
Below high school	211	47.50	251	52.50	1.00	Reference	1.00	Reference
High school	472	57.42	350	42.58	1.60***	1.28 ~ 2.02	1.62***	1.23 ~ 2.14
Higher education	55	56.12	43	43.88	1.52	0.98 ~ 2.36	2.44***	1.35 ~ 4.44
Employment status	766	53.27	672	46.73	***		**	
Employed	493	56.15	385	43.85	1.00	Reference	1.00	Reference
Unemployed	49	33.79	96	66.21	0.40***	0.28 ~ 0.58	0.51**	0.34 ~ 0.78
Retired	48	66.67	24	33.33	1.56	0.94 ~ 2.60	1.34	0.71 ~ 2.53
Homemaker	176	51.31	167	48.69	0.82	0.64 ~ 1.06	0.76	0.56 ~ 1.05
English spoken ability	766	53.05	678	46.95	**		***	
Not at all	269	48.47	286	51.51	1.00	Reference	1.00	Reference
Not well	451	56.73	344	43.27	1.39**	1.12 ~ 1.73	1.85***	1.39 ~ 2.47
Well	46	48.94	48	51.06	1.02	0.66 ~ 1.58	1.77	0.97 ~ 3.24
Current marital states	765	53.13	675	46.88	***		***	
Married/living a married	606	55.85	479	44.15	1.00	Reference	1.00	Reference
Never married	71	37.57	118	62.43	0.48***	0.35 ~ 0.65	0.53**	0.36 ~ 0.78
Divorced / separated	25	39.68	38	60.32	0.52*	0.31 ~ 0.87	0.45**	0.25 ~ 0.82
Widowed	63	61.76	39	38.24	1.28	0.84 ~ 1.94	1.30	0.81 ~ 2.10
Born in U.S.	762	53.03	675	46.97	***		**	
No	705	52.14	647	47.86	1.00	Reference	1.00	Reference
Yes	57	67.06	28	32.94	1.87**	1.17 ~ 2.97	2.22**	1.34 ~ 3.66
Years lived in U.S.	769	53.03	681	46.97	***			
1 ~ 10 years	226	44.58	281	55.42	1.00	Reference		
11 ~ 20 years	476	56.13	372	43.87	1.59***	1.28 ~ 1.99		
21 ~ 35 years	67	70.53	28	29.47	2.97***	1.85 ~ 4.78		
English reading ability	762	52.88	679	47.12	*			
Not at all	403	49.94	404	50.06	1.00	Reference		
Not well	322	57.30	240	42.70	1.35**	1.08 ~ 1.67		
Well	37	51.39	35	48.61	1.06	0.65 ~ 1.72		

* $p \leq 0.001$; ** $p \leq 0.01$; *** $p \leq 0.05$. It was the overall significance when following the factor category names; otherwise, it was the significance of the factor level.

CI, confidence interval.

TABLE 2. ASSOCIATION OF A PAP TEST WITH PERCEIVED RISKS

Associated factors	Total %	Response to a Pap test				Unadjusted odds ratios		Adjusted odd ratios	
		Yes		No					
		n	%	n	%	Point estimate	95% CI	Point estimate	95% CI
At risk to get cervical cancer		765	53.13	675	46.88	***		***	
Disagree	44.6	385	61.11	245	38.89	1.00	Reference	1.00	Reference
Uncertain	51.5	314	45.17	414	54.83	0.52***	0.42 ~ 0.65	0.58***	0.46 ~ 0.74
Agree	3.9	39	70.91	16	29.09	1.55	0.85 ~ 2.84	2.45*	1.21 ~ 4.97
More likely than average women to get the cancer		761	53.03	674	46.97	***		**	
Disagree	52.0	422	56.57	324	43.43	1.00	Reference	1.00	Reference
Uncertain	45.3	312	48.00	338	52.00	0.71**	0.57 ~ 0.88	0.80	0.63 ~ 1.01
Agree	2.7	27	69.23	12	30.77	1.73	0.86 ~ 3.46	2.98**	1.36 ~ 6.54

* $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$.

Adjusted odds ratios were calculated from a logistic model adjusted for demographic variables.

years, who did not speak English at all, were unemployed, never married or were divorced/separated, had a less than a high school education, or lived in the United States for less than 10 years were less likely to have ever had a Pap test ($p < 0.01$) compared with their counterparts. In the multivariate analyses, age, education level, employment status, marital status, English speaking ability, and country of birth remained significantly associated with prior screening behavior. Thus, these variables were included as covariates in the subsequent multivariate logistic regression analyses examining the independent association between variables at the item level in the HBM constructs and a prior Pap test.

With regard to perceived risk, 4% of participants considered themselves at risk for developing cervical cancer and 3% deemed they were more likely than the average women to get cervical cancer. Both factors were significantly associated with ever having had a Pap test in the univariate analyses (both

$p < 0.001$) and multivariate analyses after adjusting for socio-demographic variables ($p < 0.001$ and $p < 0.01$, respectively) (Table 2). Women who perceived that they were at risk or were more likely than the average woman to get cervical cancer had a greater likelihood of ever having had a Pap test compared with those who did not have such perceptions.

With regard to the perceived severity variables, approximately one-third of women agreed with the three statements: "Cervical cancer threatens my relationship with my husband/partner," "Women having cervical cancer will die from it," and "Having cervical cancer changes life." Women who were uncertain about these statements reported the lowest Pap test rates (43.19%, 48.15%, and 40.14%, respectively; $p < 0.001$). To the contrary of our hypothesis, those who agreed with these statements had lower screening rates compared with those who did not, and the associations remained significant even after adjusting for sociodemographic factors (Table 3).

TABLE 3. ASSOCIATION OF A PAP TEST WITH PERCEIVED SEVERITY

Associated factors	Total %	Response to a Pap test				Unadjusted odds ratios		Adjusted odd ratios	
		Yes		No					
		%	n	%	n	Point estimate	95% CI	Point estimate	95% CI
The cancer threatens my relationship with husband/partner		763	52.99	677	47.01	***		***	
Disagree	7.4	71	66.98	35	33.02	1.00	Reference	1.00	Reference
Uncertain	53.5	333	43.19	438	56.81	0.38***	0.24 ~ 0.58	0.35***	0.22 ~ 0.56
Agree	39.1	359	63.77	204	36.23	0.87	0.56 ~ 1.35	0.88	0.50 ~ 1.31
Women having cervical cancer will die from it		768	53.15	677	46.85	***		**	
Disagree	26.7	241	62.44	145	37.56	1.00	Reference	1.00	Reference
Uncertain	43.1	300	48.15	323	51.85	0.56***	0.43 ~ 0.72	0.63**	0.47 ~ 0.84
Agree	30.2	227	52.06	209	47.94	0.65**	0.49 ~ 0.86	0.67*	0.49 ~ 0.92
Having cervical cancer changes life		765	53.16	674	46.84	***		***	
Disagree	10.3	110	74.32	38	25.68	1.00	Reference	1.00	Reference
Uncertain	50.4	291	40.14	434	59.86	0.23***	0.16 ~ 0.35	0.23***	0.15 ~ 0.36
Agree	39.3	364	64.31	202	35.69	0.62*	0.41 ~ 0.94	0.59*	0.38 ~ 0.92

* $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$.

Adjusted odds ratio was calculated from a logistic model adjusted for demographic variables.

TABLE 4. ASSOCIATION OF A PAP TEST WITH PERCEIVED BENEFITS

Associated factors	Total %	Responses to the PAP test				Unadjusted odds ratios		Adjusted odds ratios	
		Yes		No		Point estimate	95% CI	Point estimate	95% CI
		n	%	n	%				
Having a Pap test so as not to worry about cervical cancer		740	53.31	648	46.69	***		***	
Disagree	17.2	87	36.40	152	63.60	1.00	reference		
Uncertain	41.2	255	44.58	317	55.42	1.41*	1.03 ~ 1.92	1.24	0.88 ~ 1.75
Agree	41.6	398	68.98	179	31.02	3.88***	2.83 ~ 5.33	3.85***	2.70 ~ 5.49
Pap test is the best way to detect cervical cancer		768	53.41	670	46.59	***		***	
Disagree	8.2	37	31.36	81	68.64	1.00	reference	1.00	reference
Uncertain	43.7	258	41.08	370	58.92	1.53*	1.00 ~ 2.32	1.26	0.80 ~ 1.99
Agree	48.1	473	68.35	219	31.65	4.73***	3.10 ~ 7.20	3.89***	2.46 ~ 6.15
Easier to treat cervical cancer due to early detection		765	53.09	676	46.91	***		***	
Disagree	4.0	23	39.66	35	60.34	1.00	reference	1.00	reference
Uncertain	46.4	256	38.32	412	61.68	0.95	0.55 ~ 1.64	0.89	0.49 ~ 1.62
Agree	49.6	486	67.97	229	32.03	3.23***	1.87 ~ 5.59	3.04***	1.67 ~ 5.54
A pap test is important for staying healthy		768	53.41	670	46.59	***		***	
Disagree	5.1	29	39.73	44	60.27	1.00	reference	1.00	reference
Uncertain	45.1	247	38.06	402	61.94	0.93	0.57 ~ 1.53	0.68	0.40 ~ 1.17
Agree	49.8	492	68.72	224	31.28	3.33***	2.03 ~ 5.46	2.44***	1.42 ~ 4.18
Annual Pap test decreases the chances of dying from cervical cancer		768	53.30	673	46.70	***		***	
Disagree	14.9	83	38.79	131	61.21	1.00	reference	1.00	reference
Uncertain	40.7	244	41.57	343	58.43	1.12	0.82 ~ 1.55	0.95	0.67 ~ 1.35
Agree	44.4	441	68.91	199	31.09	3.50***	2.53 ~ 4.83	3.26***	2.28 ~ 4.67

* $p \leq 0.05$; *** $p \leq 0.001$.

Adjusted odds ratio was calculated from a logistic model adjusted for demographic variables.

In terms of the perceived benefits of Pap test, about 50% of the participants believed that Pap tests are the best way to detect cervical cancer, cervical cancer can be easily treated if detected early, and a Pap test is important for staying healthy. Women who perceived these benefits were two to four times more likely of ever having had a Pap test compared with those who did not (Table 4) after adjusting for sociodemographic factors. The odds ratios (ORs) and 95% confidence intervals (CIs) were 2.44 (1.42 ~ 4.18) for the item "a pap test is important for staying healthy"; 3.04 (1.67 ~ 5.54) for the item "easier to treat cervical cancer due to early detection"; 3.26 (2.28 ~ 4.67) for the item "annual Pap test decreases the chances of dying from cervical cancer"; 3.85 (2.70 ~ 5.49) for the item "having a Pap test so as not to worry about cervical cancer"; and 3.89 (2.46 ~ 6.15) for the item "Pap test is the best way to detect cervical cancer."

More than half of the participants experienced some access barriers to obtaining a Pap test. For example, some women believed a Pap test took too much time (55.1%), cost too much money (56.8%), or experienced language difficulties when scheduling a Pap test (53.3%). In addition, 28.8% did not know where to go for a Pap test, and <27.7% did not understand what is done during a Pap test. The most frequently perceived psychosocial/cultural barriers to Pap tests were being uncomfortable with doing a Pap test with a stranger (41.0%), believing that one's spouse/partner would be uncomfortable

with screening performed by a male doctor (38.8%), perceiving that one does not need a test if feeling well (35.5%), believing a test will be painful or unpleasant (27.7%), and believing a Pap test will be embarrassing (15.1%). Factors associated with perceived barriers had the strongest association with having prior Pap test screening (see Table 5).

Regarding the measures of self-efficacy, women who were confident in their abilities to schedule a Pap test, to undergo the Pap test, or to manage any emotional distress caused by the test reported substantially higher screening rates (72%–73%) than those who lacked strong confidence (14%–16%) ($p < 0.001$, Table 6).

In multivariate analyses using the forward selection method, two perceived risk variables (perceived risk for developing cervical cancer and the belief that one was more likely than the average women to get cervical cancer), one perceived severity variable (having cervical cancer changes life), one perceived benefits variable (Pap test is important for staying healthy), six perceived barrier variables (not understanding what is done during a Pap test, scared to find out that I have cervical cancer, embarrassment, doctors unavailable at convenient time, takes too much time to get tested, and I do not need a test when feeling well), as well as one self-efficacy variable (confidence in obtaining a future test) remained statistically significant (Table 7). This suggests that independent associations with prior screening behavior

TABLE 5. ASSOCIATION OF A PAP TEST WITH PERCEIVED BARRIERS

Associated factors	Total %	Response to a Pap test				Unadjusted odds ratios		Adjusted odds ratios	
		Yes		No		Point estimate	95% CI	Point estimate	95% CI
		n	%	n	%				
Not understand what is done during a Pap test		761	53.44	663	46.56	***		****	
Disagree	27.1	343	88.86	43	11.14	1.00	Reference	1.00	Reference
Uncertain	45.2	320	49.69	324	50.31	0.12***	0.09 ~ 0.18	0.10***	0.07 ~ 0.15
Agree	27.7	98	24.87	296	75.13	0.04***	0.03 ~ 0.06	0.04***	0.03 ~ 0.06
A test won't prevent from getting cancer		764	53.46	665	46.54	***		***	
Disagree	41.1	390	66.33	198	33.67	1.00	Reference	1.00	Reference
Uncertain	45.2	264	40.87	382	59.13	0.35***	0.28 ~ 0.44	0.33***	0.26 ~ 0.43
Agree	13.7	110	56.41	85	43.59	0.66*	0.47 ~ 0.92	0.77	0.53 ~ 1.11
Partner uncomfortable with a test by a male doctor		760	53.37	663	46.63	***		***	
Disagree	13.8	150	76.14	47	23.86	1.00	Reference	1.00	Reference
Uncertain	47.4	310	45.93	365	54.07	0.27**	0.19 ~ 0.38	0.25***	0.16 ~ 0.37
Agree	38.8	300	54.35	252	45.65	0.37**	0.26 ~ 0.54	0.35***	0.23 ~ 0.54
A pap test embarrassing me		766	53.45	667	46.55	***		***	
Disagree	26.2	296	78.93	79	21.07	1.00	Reference	1.00	Reference
Uncertain	58.7	365	43.35	477	56.65	0.20***	0.15 ~ 0.27	0.18***	0.13 ~ 0.25
Agree	15.1	105	48.61	111	51.39	0.25***	0.18 ~ 0.36	0.25***	0.17 ~ 0.38
Unavailable doctors at convenient times		761	53.52	661	46.48	***		***	
Disagree	19.9	208	73.50	75	26.50	1.00	Reference	1.00	Reference
Uncertain	52.7	407	54.34	342	45.66	0.43***	0.32 ~ 0.58	0.34***	0.24 ~ 0.48
Agree	27.4	146	37.44	244	62.56	0.22***	0.15 ~ 0.30	0.19***	0.13 ~ 0.28
Uncomfortable to test with a stranger		757	53.31	663	46.69	***		***	
Disagree	18.1	206	80.16	51	19.84	1.00	Reference	1.00	Reference
Uncertain	40.9	257	44.23	324	55.77	0.20***	0.14 ~ 0.28	0.20***	0.14 ~ 0.30
Agree	41.0	294	50.52	288	49.48	0.25***	0.18 ~ 0.36	0.27***	0.18 ~ 0.40
Do not know where or to whom to go for Pap test		762	53.40	665	46.60	***		***	
Disagree	21.2	260	86.09	42	13.91	1.00	Reference	1.00	Reference
Uncertain	50.0	367	51.40	347	48.60	0.17***	0.12 ~ 0.24	0.15***	0.10 ~ 0.23
Agree	28.8	135	32.85	276	67.15	0.08***	0.05 ~ 0.12	0.07***	0.05 ~ 0.11
I do not need a test when feeling OK		766	53.49	666	46.51	***		***	
Disagree	33.0	340	71.88	133	28.12	1.00	Reference	1.00	Reference
Uncertain	31.5	196	43.46	255	56.54	0.30***	0.23 ~ 0.40	0.28***	0.21 ~ 0.38
Agree	35.5	230	45.28	278	54.72	0.32***	0.25 ~ 0.42	0.32***	0.23 ~ 0.43
Having a test will be painful or unpleasant		764	53.46	665	46.54	***		***	
Disagree	21.6	237	76.70	72	23.30	1.00	Reference	1.00	Reference
Uncertain	50.7	338	46.69	386	53.31	0.27***	0.20 ~ 0.36	0.21***	0.15 ~ 0.30
Agree	27.7	189	47.73	207	52.27	0.28***	0.20 ~ 0.39	0.26***	0.17 ~ 0.37
Too much time for Pap test		757	53.39	661	46.61	***		***	
Disagree	17.3	193	78.78	52	21.22	1.00	Reference	1.00	Reference
Uncertain	27.6	177	45.15	215	54.85	0.22***	0.15 ~ 0.32	0.18***	0.12 ~ 0.27
Agree	55.1	387	49.55	394	50.45	0.27***	0.19 ~ 0.37	0.24***	0.16 ~ 0.35
Too much money for Pap test		759	53.34	664	46.66	***		***	
Disagree	15.9	184	81.42	42	18.58	1.00	Reference	1.00	Reference
Uncertain	27.3	204	52.58	184	47.42	0.25***	0.17 ~ 0.37	0.22***	0.14 ~ 0.35
Agree	56.8	371	45.86	438	54.14	0.19***	0.14 ~ 0.28	0.18***	0.12 ~ 0.27
Language difficult for schedule a test		760	53.41	663	46.59	***		***	
Disagree	15.7	164	73.54	59	26.46	1.00	Reference	1.00	Reference
Uncertain	31.0	223	50.45	219	49.55	0.37***	0.26 ~ 0.52	0.31***	0.21 ~ 0.47
Agree	53.3	373	49.21	385	50.45	0.35***	0.25 ~ 0.49	0.30***	0.20 ~ 0.46

(continued)

TABLE 5. (CONTINUED)

Associated factors	Total %	Response to a Pap test				Unadjusted odds ratios		Adjusted odds ratios	
		Yes		No					
		n	%	n	%	Point estimate	95% CI	Point estimate	95% CI
No transportation for Pap test		761	53.55	660	46.45	***		***	
Disagree	22.1	227	72.29	87	27.71	1.00	Reference	1.00	Reference
Uncertain	53.8	394	51.50	371	48.50	0.41***	0.31 ~ 0.54	0.34***	0.25 ~ 0.48
Agree	24.1	140	40.94	202	59.06	0.27***	0.19 ~ 0.37	0.26***	0.18 ~ 0.38
Scared to know having the cancer		763	53.39	666	46.61	***		***	
Disagree	41.2	405	68.76	184	31.24	1.00	Reference	1.00	Reference
Uncertain	52.1	308	41.40	436	58.60	0.32***	0.26 ~ 0.40	0.31***	0.24 ~ 0.40
Agree	6.7	50	52.08	46	47.92	0.49**	0.32 ~ 0.76	0.56**	0.34 ~ 0.91

* $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$.

Adjusted odds ratio was calculated from a logistic model adjusted for demographic variables.

remained after adjusting for sociodemographic characteristics and related factors within each subscale.

Discussion

The 53% rate of ever having been screened for cervical cancer reported in our study population is at the low end of the range compared with studies of Vietnamese American women conducted in other areas of the United States, including the West Coast and the South, where Vietnamese Americans are mainly concentrated in metropolitan areas,^{17,18,23,24} but this rate is close to the national data from the Commonwealth 2001 Health Care Quality Survey.¹² It is also lower than that of the overall rate for Asian American women.^{12,21} To the best of our knowledge, there is no cervical cancer incidence or mortality data available for Vietnamese American women in Pennsylvania, which made it impossible to compare with national and other state-level data. Nevertheless, the low screening rate clearly shows that significant challenges are being faced. The Healthy People 2010 objectives specify that 97% of women

aged 18 years and older should have received at least one Pap test.⁴⁵ The current rate of cervical cancer screening for Vietnamese American women is by no means close to approaching that goal. To eliminate or reduce this health disparity, healthcare providers, researchers, and policy makers need to have a greater understanding of this underserved population so that culturally and linguistically appropriate education and intervention programs can be developed, delivered to, and accepted by the Vietnamese American population.

Using HBM constructs as a framework, our findings suggested that perceived risks, but not perceived severity, are associated with receipt of prior cervical cancer screening. Although one-third of Vietnamese American women said they believed cancer will threaten their relationship with their husband/partner and that having cervical cancer will change their whole life, these beliefs do not translate into the action of getting a Pap test. A critical review of the studies predicting Pap testing using the HBM model found that among these six studies that included measures of perceived severity of cervical cancer, only two suggested higher levels of perceived

TABLE 6. ASSOCIATION OF A PAP TEST WITH CONFIDENCE IN A FUTURE TEST

Associated factors	Total %	Response to a Pap test				Unadjusted odds ratios		Adjusted odds ratios	
		Yes		No					
		n	%	n	%	Point estimate	95% CI	Point estimate	95% CI
Confident in a test arrangement		755	53.55	655	46.45	***		***	
Strong	50.5	513	72.05	199	27.95	1.00	Reference	1.00	Reference
General	31.9	204	45.33	246	54.67	0.32***	0.25 ~ 0.41	0.30***	0.23 ~ 0.40
Weak	17.6	38	15.32	210	84.68	0.07***	0.05 ~ 0.10	0.06***	0.04 ~ 0.09
Confident in getting a test		755	53.55	655	46.45	***		***	
Strong	50.5	518	72.65	195	27.35	1.00	Reference	1.00	Reference
General	32.1	203	44.91	249	55.09	0.31***	0.24 ~ 0.39	0.29***	0.22 ~ 0.38
Weak	17.4	34	13.88	211	86.12	0.06***	0.04 ~ 0.09	0.05***	0.03 ~ 0.07
Confident in managing emotional distress caused by a test		755	53.55	655	46.45	***		***	
Strong	50.0	510	72.14	197	27.86	1.00	Reference	1.00	Reference
General	19.1	203	46.56	67	53.44	0.34***	0.26 ~ 0.43	0.31***	0.23 ~ 0.41
Weak	18.9	42	15.73	225	84.27	0.07***	0.05 ~ 0.10	0.05***	0.04 ~ 0.08

*** $p \leq 0.001$.

Adjusted odds ratio was calculated from a logistic model adjusted for demographic variables.

TABLE 7. PERCEIVED RISKS, SEVERITY, BENEFITS, BARRIERS, AND SELF-EFFICACY VARIABLES INDEPENDENTLY ASSOCIATED WITH A PAP TEST

	Associated factor	Forward selection adjusted odds ratio	
		Point estimation	95% CI
Perceived risks	At risk to get cervical cancer	***	
	Disagree	1.00	Reference
	Uncertain	0.37***	0.24 ~ 0.56
	Agree	1.43	0.55 ~ 3.70
	More likely than average women to get the cancer	*	
	Disagree	1.00	Reference
Perceived severity	Uncertain	1.75**	1.17 ~ 2.64
	Agree	2.23	0.75 ~ 6.62
	Having cervical cancer changes life	***	
Perceived benefits	Disagree	1.00	Reference
	Uncertain	0.23***	0.15 ~ 0.35
	Agree	0.57*	0.36 ~ 0.90
Perceived barriers	A pap test is important for staying healthy	***	
	Disagree	1.00	Reference
	Uncertain	0.67	0.39 ~ 1.15
	Agree	2.42***	1.41 ~ 4.16
	Not understanding what is done during a test	***	
	Disagree	1.00	Reference
	Uncertain	0.13***	0.09 ~ 0.25
	Agree	0.03***	0.02 ~ 0.06
	Scared to know having the cancer	***	
	Disagree	1.00	Reference
	Uncertain	0.78	0.49 ~ 1.24
	Agree	1.65	0.85 ~ 3.20
	A pap test embarrassing me	***	
	Disagree	1.00	Reference
	Uncertain	0.36***	0.21 ~ 0.60
	Agree	0.63	0.35 ~ 1.15
	Unavailable doctors at convenient times	***	
	Disagree	1.00	Reference
	Uncertain	1.50	0.89 ~ 2.54
	Agree	0.63	0.36 ~ 1.09
	Too much time for a test	***	
	Disagree	1.00	Reference
	Uncertain	0.78	0.41 ~ 1.46
	Agree	1.58	0.86 ~ 2.91
	I do not need a test when feeling OK	**	
	Disagree	1.00	Reference
	Uncertain	0.52**	0.32 ~ 0.85
	Agree	0.53*	0.32 ~ 0.90
Confidence in a future test	Confidence in getting a test	***	
	Strong	1.00	Reference
	General	0.29***	0.22 ~ 0.38
	Weak	0.06***	0.03 ~ 0.07

* $p \leq 0.05$, ** $p \leq 0.01$, and *** $p \leq 0.001$.

severity of cervical cancer were associated with increased odds of having had a Pap screening.³⁹ The inconsistency of the association between perceived severity and cervical cancer screening may be due, in part, to the perception of low risks of developing cervical cancer. Indeed, in our study, only 4% of the participants believed they were at risk for getting cervical cancer and 3% believed they were more likely than the average women to get cervical cancer. Low perceived risks were also reported by a study conducted in Texas among Viet-

namese American women, in which only 2% believed they were at high risk for cervical cancer.¹⁷ However, our study's results showed that those who did believe they were at risk or believed they were more likely to get cervical cancer than the average women were more than twice as likely to have had a cervical cancer screening test compared with those who did not, which demonstrated the importance of educating Vietnamese American women about their risk for cervical cancer in order to increase their awareness.

Vietnamese women in our study perceived significant barriers regarding access to health care. More than half of the participants expressed concerns about time, money, and language ability in relation to getting a Pap test; in contrast, these concerns were only marginally noted among Vietnamese American women living in Texas.¹⁷ Although there are several programs available that provide low-cost or free cancer screening services, Vietnamese American women are often unaware of these services, not eligible for these programs, or face considerable barriers to accessing such programs.³⁰ Identifying and targeting subgroups of women who are not able to access or receive the needed programs and providing patient navigation assistance will be effective in increasing screening rates among these women.

Although structural factors may account for underutilization of the Pap test, they do not account for all the variation in behavior that women exhibit. While the participants identified structural and access barriers such as lack of transportation, language difficulties, and lack of time, which have already been reported in other studies,^{12,26,29,31} they also perceived great psychosocial/cultural barriers. Psychological factors can impede women from accessing health care even when medical services are available at little or no cost.⁴⁶ Previous research has demonstrated that psychological barriers were greater negative predictors than socioeconomic barriers in cervical cancer screening.⁴⁷ These include perceptions, social customs, and culturally induced beliefs and attitudes that are related to women's backgrounds and socialization. In our study, the most frequently perceived psychosocial/cultural barriers to obtaining Pap tests were being uncomfortable with having a test performed by a stranger (41.0%), partner uncomfortable with a test done by a male doctor (38.8%), not needing a test when feeling well (35.5%), believing a test will be painful or unpleasant (27.7%), and believing a Pap test is embarrassing (15.1%). The belief that it is unnecessary to have a Pap test when one feels well is consistent with cultural beliefs that healthcare is a service that one seeks for specific, manifested complaints and symptoms.⁴⁸ With the exception of one study,²² modesty is frequently cited as a barrier in accessing cervical cancer screening programs among Asian American women, including Vietnamese Americans.^{26,49–51} This finding was also supported by our study. Although some of these factors were not retained in the multivariate analyses due to collinearity with other factors, our findings are in line with the literature in finding that Vietnamese Americans hold relatively conservative views about sexually related health topics; many women require the permission and support of their male relatives to seek gynecological care,³¹ and Vietnamese women are more likely to receive a Pap test if a family member suggests they do so.²²

These findings highlight the need to address these psychosocial concerns through education programs. While most such education programs only focus on women themselves, we believe husbands/male partners, and other family members should be involved in this collective effort. Their inclusion and comments were critical in providing recommendations for the design of educational and awareness campaigns for this community. Indeed, the role of males in the public health effort to increase knowledge and cervical cancer screening rate has been recognized in a study of young Asian Americans' knowledge and perceptions of cervical cancer and HPV.³¹ In that study, Vietnamese, Korean, and Filipino males

were invited to participate in a focus group discussion about their knowledge and perceptions of cervical cancer and Pap tests. They were also invited to comment on developed education materials and provide suggestions and recommendations from the perspectives of husband/partners. Based on our findings and the literature, we recommend that males be included in future women's health education and intervention programs. Studies have demonstrated that males are willing to act on the information provided by health professionals and researchers if messages are delivered appropriately.³¹

Despite the perceived multiple barriers, Vietnamese American women also recognized some benefits of participating in a cervical cancer screening program. About 50% of the participants believed that Pap tests are the best way to detect cervical cancer, cervical cancer can be easily treated if found early, and a Pap test is important for staying healthy. Not surprisingly, women who had these positive perceptions had two to four times the likelihood of having had a Pap test compared with those who did not.

Our study corroborates the theory proposed by Rosenstock et al. that patients' sense of competence in carrying out the prescribed actions can lead them to treatment and preventive actions.³⁴ We found that self-efficacy has a significant impact on Pap test behavior. Approximately three-quarters of women in our study who were strongly confident that they could make a test arrangement, could get a test, or could manage emotional distress caused by a Pap test had ever had a Pap test compared with a 15% screening rate for those who were not as confident. About 50% of the participants did not have the confidence to arrange a Pap test or manage the emotional distress caused by a test. To enhance women's self-efficacy in receiving Pap tests, comprehensive and multifaceted skills training should be provided to these women with the aim of increasing their knowledge and understanding of cervical cancer and early detection, overcoming the access and psychosocial/cultural barriers, and encouraging positive thinking and proactive behavior.

Several limitations should be noted in this study. First, our findings may not be generalizable to Vietnamese American residents who are not closely engaged with their communities, and nonparticipants may have different patterns of cervical cancer screening behaviors from the study respondents. Second, although the HBM has been used as a psychosocial model to explain cervical cancer screening, its application has been inconsistent in the inclusion of domain subscale components across studies. Although we added self-efficacy measures to explore Vietnamese American women's belief in their ability of obtaining Pap testing,³⁴ additional to the original four subscales proposed by Beck,³³ we did not include cues to action,⁵² which has limited our capacity to examine how events—whether physical or environmental—may motivate one to take action. In addition, in spite of the benefit of analyzing the association between HBM and cervical cancer at the item level over the subscale level for the purpose of identifying multiple beliefs and attitudes that can be considered when developing future intervention programs, caution needs to be practiced when interpreting findings. Specifically, items derived from the same subscale need to be put into the same context and considered collectively. Third, there are considerable obstacles to implying a cause and effect relationship given the facts that data were collected for current health beliefs and prior Pap test

screening. The Pap test behavior that will be measured at 12-month follow up may help clarify the temporal relationship. Fourth, possible response bias should be recognized due to the nature of self-reported data collection.

Despite these limitations, using a theoretical framework of HBM provides a close examination of Vietnamese women's cultural beliefs and how these beliefs may be associated with cervical cancer screening behavior. Based on our findings, we recommend that intervention programs should remove a combination of structural and psychosocial barriers associated with screening. They should also take advantage of the relatively high perceived benefits of screening such as "a Pap test is important for staying healthy" to instill the value of early detection. In particular, emphasizing familial values such as "screening for family" might also be worth more attention.⁵³ In other words, these programs should recognize Vietnamese American women's traditional beliefs while encouraging them to adopt new health preventive concepts into their daily life.

Adherence to screening tests is another important outcome that has not been well studied in Vietnamese American populations. While provision of essential assistance through patient navigation—including translation services, enrollment assistance, transportation, etc.—may be effective in overcoming access barriers to screening,⁵⁴ whether it will motivate Vietnamese American women to adhere to screening guidelines for regular screening is uncertain. Understanding this community's cultural beliefs and providing culturally competent education to increase understanding of the importance of early detection and enhance the perceived benefits of abiding by screening guidelines will hopefully equip Vietnamese American women to take initiatives to not only adopt the screening program, but more importantly, to adopt a lifelong adherence to the program. Future studies should focus on the impact of HBM constructs including cues to action on Vietnamese American women's cervical cancer screening adherence and compliance.

Conclusion

Using the theoretical framework of the widely accepted HBM, our findings provide an important insight into and complement our understanding of access, linguistic, and socioeconomic barriers and disparities in cervical cancer screening among Vietnamese Americans. In addition, these findings will inform the development of effective intervention strategies for Vietnamese American women and identify those Vietnamese women who are most at risk for cervical cancer and would benefit from intervention programs to increase cervical cancer screening rates.

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 (Appendix follows →)

APPENDIX A: ADAPTED HEALTH BELIEF MODEL MEASURES

Perceived Susceptibility

I think I am at risk for getting cervical cancer.
I am more likely than the average woman to get cervical cancer.

Perceived Severity

Cervical cancer would threaten my relationship with my husband/partner.
Most women who develop cervical cancer will die from it.
My whole life would change if I had cervical cancer.

Perceived Benefits

When I get a Pap test, I don't worry as much about cervical cancer.
Getting a Pap test is the best way to detect cervical cancer.
A Pap test can detect cervical cancer in its early stages, when it is easier to treat and cure.
Getting a Pap test every year is an important thing for me to do in order to stay as healthy as I can.
Having a Pap test every year will decrease my chances of dying from cervical cancer.

Perceived Barriers

I do not understand what will be done during a Pap test.

If I'm destined to get cancer, having a Pap test will not prevent me from getting cancer.
My partner is uncomfortable with me being examined by a male doctor.
Having a Pap test is embarrassing for me.
My doctor is not available at times that are convenient for me to have a Pap test.
I am uncomfortable with having a stranger perform a Pap test.
I do not know where to go or who to ask to get a Pap test.
I do not need to get a Pap test if I feel OK.
Having a Pap test will be painful and unpleasant.
Having a Pap test will take too much time.
Having a Pap test would cost too much money.
I have language difficulties that make scheduling a Pap test very hard.
I have no means of transportation to the health clinic for a Pap test.
I am scared to have a Pap test because I might learn that I have cancer.

Self-efficacy

I feel capable of arranging to have a Pap test.
I feel capable of getting a Pap test.
I feel capable of managing any emotional distress caused by Pap test.