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Pap Testing Stages of Adoption among Cambodian Immigrants

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Abstract

Purpose—We examined levels of Pap testing and factors associated with screening participation among Cambodian refugees.

Methods—A community-based, in-person survey was conducted in Seattle during late 1997 and early 1998. Interviews were completed by 413 women; the estimated response rate was 73%. We classified respondents into four Pap testing stages of adoption: precontemplation/contemplation (never screened), relapse (ever screened but did not plan to be screened in the future), action (ever screened and planned to be screened in the future), and maintenance (recently screened and planned to be screened in the future). Bivariate and multivariate techniques were used to examine various factors.

Findings—About one-quarter (24%) of the respondents has never been screened, and a further 22% had been screened but did not plan to obtain Pap tests in the future. Fifteen percent were in the action stage and 39% were in the maintenance stage. The following factors were independently associated with cervical cancer screening stages: previous physician recommendation; younger age; beliefs about Pap testing for post-menopausal women, screening for sexually inactive women, and regular checkups; provider ethnicity; prenatal care in the US; and problems finding interpreters.

Conclusions—Our findings confirm low Pap testing rates among Cambodian immigrants, and suggest that targeted interventions should be multifaceted.

INTRODUCTION

Census data indicate there were over one million Southeast Asians, including about 150,000 Cambodians, living in the United States in 1990¹. The majority of Cambodians was forced to flee their country because of the political and personal persecution imposed by the Khmer Rouge regime and was relocated to North America from overseas refugee camps^{2–3}. Cambodia is a largely agrarian society, and before the revolutionary period, the majority of

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Cambodians lived in rural or semi-rural settings⁴. Therefore, it is not surprising that most immigrants from this country are both socially disadvantaged and linguistically isolated; nearly 50% live below the Federal poverty level and over 90% speak Khmer at home¹. Cambodians are also particularly unfamiliar with western culture and biomedical concepts⁵⁻⁶.

California data show that Southeast Asians have higher invasive cervical cancer incidence rates than any other racial/ethnic group (35.2 per 100,000 compared to 7.5 per 100,000 among nonLatina whites)⁷. In addition, Surveillance Epidemiology and End Results Program data suggest that cervical cancer is the most commonly occurring malignancy among Vietnamese American women (incidence rate of 43.0 per 100,000 compared to 37.5 per 100,000 for breast cancer)⁸. Several population-based studies, conducted in California and Massachusetts, have documented low Papanicolaou (Pap) testing rates among Vietnamese immigrants⁹⁻¹². There is little information about the use of cervical cancer screening by Cambodian American women. However, Yi surveyed a convenience sample of Cambodian refugees served by community organizations in Houston and found that about three-quarters (74%) of the respondents had never had a Pap smear, and only 13% had been screened in the preceding year¹³.

Cancer control efforts targeting immigrant groups should be based on a thorough understanding of the target population's culturally-based, knowledge, beliefs, and practices¹⁴. Our research group recently conducted a community-based survey addressing the cervical cancer screening behavior of Cambodian women. We previously described factors associated with the following indicators of screening participation: at least one previous Pap smear and Pap testing within the previous two years¹⁵. In this manuscript, we examine factors associated with stages of Pap testing adoption¹⁰.

Study Sample

About 40% of Washington State's Cambodian population lives in four contiguous South Seattle neighborhoods¹⁶. We sought to recruit a representative sample of Cambodian women living in this geographic area. Multiple sources of data were used to create a sampling frame. Specifically, households were identified from the following sources: electronic listings of all Asian clients of the Seattle Housing Authority and King County Housing Authority, a database of motor vehicle licenses from the State of Washington, and two computerized telephone directory databases. From these sources, we selected all households with ZIP codes corresponding to the target neighborhoods, and linked the records to a database of Cambodian last names. Households were then chosen systematically such that they came from neighborhoods that were known to have the highest density of Cambodians based on 1990 Census data. These areas included all residences identified from the two public housing authorities. The final sampling frame contained 2,145 households, of which 1,365 were selected for inclusion in the study.

Survey Methods

This work was approved by the human subjects review board of Fred Hutchinson Cancer Research Center. Our survey was conducted during late 1997 and early 1998. We publicized the survey through Khmer-language posters distributed in community settings, followed by a mailing to each of the study households. The introductory letter, printed in both Khmer and English, was signed by the medical director of Seattle's International Medicine Clinic and was accompanied by a photograph of the Buddhist Temple at Angkor Wat. All interviews were conducted in respondents' homes by bilingual, bicultural Cambodian women. Women were offered a calendar featuring traditional Cambodian scenes as a participation incentive, and were given the option of completing the survey in either Khmer or English.

Women were eligible to complete the questionnaire if they were 18 years or older. When a household included two or more age-eligible women, interviewers asked to speak with the oldest woman. However, if the oldest woman refused or was unavailable, the interviewer asked if a younger female household member would complete the survey. We used this approach rather than a random selection algorithm because attempts to enumerate household members have been shown to reduce response rates in Southeast Asian populations (Personal Communication: Stephen McPhee, University of California at San Francisco). Our survey workers made up to five attempts (including at least one daytime, evening, and weekend attempt) at contacting each household.

Questionnaire Development

Eyton and Neuwirth have suggested that qualitative methods should routinely be applied during the development of survey instruments for Southeast Asian populations¹⁷. Our selection of survey questions was guided by an earlier qualitative study addressing Pap testing barriers and facilitators among Cambodian refugees¹⁸. When appropriate, given the results of our qualitative study, survey items were adapted from the Pathways to Prevention questionnaire which has been successfully used in several Asian American populations^{11,19–20}. The survey instrument was developed in English, translated into Khmer, and back-translated to ensure lexical equivalence¹⁷.

Survey Content

The survey instrument included several sociodemographic and acculturation items. Specifically, women were queried about their age, religion, marital status, educational level, and type of housing (i.e., government-subsidized versus other). Respondents were also asked how many years they had lived in the US, their age at immigration, and whether they spoke English fluently.

Several questions addressed women's cervical cancer screening behavior and intentions. Respondents were asked whether they had ever had a Pap test and, if so, the interval since their last screening. Women who had never been screened were asked if they had ever thought about having a Pap smear. Those who had received Pap testing were asked if they planned to be screened in the next 12 months. (Most physicians in the Seattle area choose to screen women annually.) Because there is a lack of consensus about the need for cervical cancer screening among women without uteri, each woman was also queried about her hysterectomy status^{21–22}.

The qualitative study indicated that women's preventive beliefs and cervical cancer knowledge would be important predictors of screening behavior. Therefore, survey participants were asked whether they believed that illness is a matter of "karma", illness is a matter of fate, women should have regular checkups, some cancers are curable if detected early, and Pap tests can prolong life. Cervical cancer knowledge variables included whether a survey participant knew that Cambodians have an increased cervical cancer risk, older women are at increased risk of disease, Pap smears are necessary for women who are not sexually active, and Pap testing is necessary for post-menopausal women. We also considered two social support variables identified by our qualitative work: previous recommendations for cervical cancer screening by a family member or friend.

Health care factors included items addressing past medical history as well as access issues. Specifically, each survey respondent was asked if she had ever received prenatal or family planning services in the US, if she had health insurance coverage, and whether she had a regular provider. Our qualitative data suggested that two provider characteristics may affect Cambodian women's cervical cancer screening behavior. First, a shortage of female doctors

was considered a barrier to Pap testing. Second, women reported that many Southeast Asian women choose physicians who were trained in Asia, and that some of these providers do not offer Pap testing services. Therefore, we also asked women with a regular health care provider to specify his or her gender as well as ethnicity. Additionally, women were queried about their preferences with respect to physician gender. Finally, participants were asked if they had ever received a physician recommendation for Pap testing, and whether their access to health care was limited by problems finding a medical interpreter and concerns about costs.

Many Cambodian Americans have little or no formal education¹. Therefore, we made the response options for questions addressing preventive beliefs, cervical cancer knowledge, health care factors, and social support variables as simple as possible. Specifically, with a few exceptions (e.g., the gender and ethnicity of a woman's health care provider), the response options were "yes", "no", and "don't know/not sure".

Data Analysis

We used responses to our Pap testing behavior questions to classify women into the cervical cancer screening stages of adoption proposed by McPhee and his colleagues from the Pathways to Prevention project¹⁰. These investigators have defined the following adoption stages: (a) never thought about having a Pap test (precontemplation); (b) thought about having a Pap test, but never been screened (contemplation); (c) received a Pap test, but does not plan to be screened in the future (relapse); (d) received a Pap test, and plans to be screened in the future (action); and (e) up-to-date with Pap testing, and plans to be screened in the future (maintenance)¹⁰. The precise definitions of adoption stages are given in Table 2.

Responses to predictor items with options of "yes", "no", and "don't know/not sure" were dichotomized into "yes" versus "other". The chi-square test and, when necessary, Fisher's exact test were used to assess statistical significance in bivariate comparisons²³. We used polytomous logistic regression models to examine independent associations between women's characteristics and Pap testing stages of adoption. This approach allows the relationship between a categorical outcome and a set of covariates to be examined when the outcome has two or more categories of interest²⁴. As a tool to build a summary model relevant to intervention planning, we used a forward variable selection method; that is, we entered the most important variables, in terms of deviance change, sequentially into our model until no other variable changed the deviance significantly²⁵.

RESULTS

Study Group

Four hundred and thirteen women completed the questionnaire. Table 1 provides details about our survey cooperation and overall response rates. The total estimated household response rate was 73%. However, 89% of the households that were reachable and known to be eligible agreed to participate. Twenty-one percent of the participating households included more than one age eligible respondent. The oldest woman completed the survey in 79% of the households with two or more age-eligible women. Six women who reported a personal history of invasive cervical cancer were excluded from the analysis. One further participant was excluded because she did not answer the Pap testing history questions, leaving 406 women.

Thirty-six percent of the study group were under 40 years of age and 18% were 60 or older. The majority were Buddhists (89%), and previously or currently married (83%). Nearly one-half (44%) had received no formal education in Cambodia or the US, and two-thirds (66%) lived in government-subsidized housing. Eighty-five percent of our respondents entered the US at least 10 years ago, and 68% were less than 40 years old at the time of immigration. Over

90% of the women could not speak fluent English. Finally, only 23 women reported a history of hysterectomy. The proportions of women in each stage of cervical cancer screening adoption are shown in Table 2. Because of the small number of women in the contemplation stage, precontemplators and contemplators were combined into one category for the bivariate and multivariate analyses.

Bivariate Analysis

Table 3 summarizes our bivariate analyses. The following sociodemographic and acculturation variables were significantly associated with Pap testing stage: age, marital status, educational level, years in the US, and age at immigration. All but one (i.e., knowledge about Cambodian women's high cervical cancer risk) of the preventive beliefs, cervical cancer knowledge, and social support items differed between adoption stages. There were statistically significant associations between six health care factors and stage: receiving family planning and obstetric services in the U.S., physician recommendation, provider gender and ethnicity, and problems finding interpreters. Stage of adoption did not vary significantly by hysterectomy status.

Multivariate Analysis

The following variables were selected by the forward selection model: physician recommendation ($p < 0.001$) and provider ethnicity ($p < 0.01$), age ($p < 0.001$), knowledge concerning the necessity of Pap testing for post-menopausal ($p < 0.001$) and sexually inactive women ($p < 0.005$), belief about regular checkups ($p < 0.05$), prenatal care in the US ($p < 0.05$), and problems finding interpreters ($p < 0.05$). Because physician recommendation was so strongly associated with adoption stage, we conducted a secondary logistic regression analysis without this variable. Two additional items entered the secondary model: years since immigration and a friend's recommendation for cervical cancer screening.

DISCUSSION

The Pathways to Prevention project recently conducted surveys of five racial/ethnic communities in the San Francisco Bay area. Very few of the white (1%) and black (2%) respondents were in the precontemplation or contemplation Pap testing stages (i.e., never been screened), compared with 24% of Latina, 33% of Chinese, and 58% of Vietnamese respondents²³. We found that approximately one-quarter of our Cambodian study population was in the precontemplation or contemplation stage. The higher levels of cervical cancer screening adoption among Cambodians in Seattle versus Vietnamese in San Francisco could be, at least partly, a reflection of differences in health insurance coverage (over 25% of the Northern California sample were uninsured)". Nevertheless, the cervical cancer screening rates reported by our survey respondents do not approach NCI's year 2000 goals that specify 95% of women should have received at least one Pap smear²⁶.

Multiple studies, conducted in diverse populations have demonstrated an association between physician recommendation and women's use of cancer screening tests²⁷. We found women with an Asian American physician were less likely to receive Pap testing than those with providers from other ethnic groups. McPhee et al. have previously reported that Vietnamese women whose primary care provider is also Vietnamese have low Pap testing rates^{10, 12}. Therefore, it is of note that the majority of Asian physicians practicing in our survey area are Vietnamese Americans who received their medical training overseas. The following factors may all contribute to low use of cervical cancer screening among these physicians: a lack of preventive training during the war years in Vietnam when the majority of physicians were in the military, a tendency to have high volume practices that do not use appointment systems, and sensitivity toward traditional Asian concepts of female modesty¹².

Problems finding medical interpreters distinguished precontemplators and contemplators from women in the other three adoption stages. Interpreters are increasingly recognized as critical members of any health care team that delivers services to immigrant communities. English speaking family members or friends are often relied upon to provide interpretation for patients who do not speak English²⁸. This approach may be a particular barrier to Pap testing because it is unlikely that a woman would want her son or nephew, for example, to be present during a gynecologic exam. Our results suggest interpreter services can facilitate linguistic access to care and the use of early detection maneuvers.

The bivariate results demonstrated differential preventive beliefs by stage of Pap testing adoption. Beliefs about the Buddhist tenets of “karma” discriminated between women in the earliest stages of adoption (i.e., precontemplation and contemplation) and those in the relapse, action, and maintenance stages. Notably, survey participants in the relapse stage were least likely to believe that women should have regular checkups. Finally, positive beliefs concerning the utility of early detection (i.e., some cancers can be cured if detected early and Pap tests can prolong life) were most likely to be held by women who were in the action and maintenance stages. Educational messages could be tailored to stage of adoption²⁷. For example, if a woman is in the contemplation stage, messages that explain Pap testing is not incongruent with Buddhist beliefs might be useful¹⁵. During relapse, the importance of regular checkups, including Pap tests, could be reinforced.

There are several limitations to this study that should be recognized. First, we chose to only include areas of Seattle with a high density of Cambodian residents. It is unclear to what extent our findings would be generalizable to other geographic areas or Cambodians who do not live in neighborhoods with a high proportion of Southeast Asian residents. Second, self-reports of cervical cancer screening use may be inaccurate due to faulty recall or acquiescence bias (i.e., over-reporting of a behavior perceived as desirable). Last, it is possible that our survey respondents had different cervical cancer screening histories than those who were unreachable or refused to participate.

Our findings confirm low levels of Pap testing participation among Southeast Asian immigrants, and indicate that educational efforts targeting Cambodian women should be multifaceted. We are currently conducting a randomized control led trial to evaluate the effectiveness and feasibility of a neighborhood-based Pap testing intervention program for Cambodian immigrants. Our cervical cancer control program is delivered by bicultural, bilingual outreach workers and includes home visits as well as small group meetings. Outreach workers show a Khmer-language video that addresses Pap testing barriers and facilitators (e.g., it includes messages about the need for Pap testing after menopause); are trained to address knowledge deficits and provide barrier-specific counseling; and are able to offer logistic assistance (e.g., clinic referrals, appointment scheduling, and interpretation during gynecologic procedures)¹⁸. These results also suggest that efforts to increase Pap testing levels among Southeast Asian populations should include interventions directed at the physicians who serve these communities.

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Table 1
Summary of Survey Response by Source of Household Identification

Household Response Category	Housing Authority (N = 492)		Telephone CD-ROM-Motor Vehicle Registration (N = 873)		AD Households (N = 1365)	
	N	%	N %	%	N %	%
A. Eligibility not established*	61	12%	238	--	299	22%
B. Verified to be ineligible**	139	28%	464	--	603	44%
C. Refused	25	5%	25	--	50	4%
D. Participated	267	54%	146	--	413	30%
E. Estimated proportion of eligibles among household where eligibility was not established (C + D)/(B + C + D)	--	68%	--	27%	--	43%
F. Estimated number of eligibles among household where eligibility was not established (E × A)	41	--	64	--	105	--
G. Estimated total household response rate (D)/(C + D + F)	--	80%	--	62%	--	73%
H. Response rate among reachable and eligible households (D)/(C + D)	--	91%	--	86%	--	89%

* No contact after five attempts

** Household not Cambodian or no age-eligible women

Table 2

Pap Testing Stages of Adoption (N = 406)

Stage	Definition	n (%)
Precontemplation	Never had a Pap test, and never thought about having a Pap test	68(17)
Contemplation	Never had a Pap test, but has thought about having a Pap test	29(7)
Relapse	Ever had a Pap test, but does not plan to have a Pap test in the next 12 months	90 (22)
Action	Last Pap test two or more years ago, but plans to have a Pap test in the next 12 months	60(15)
Maintenance	Last Pap test within the previous two years, and plans to have a Pap test in the next 12 months	159(39)

Table 3

Pap Testing Stages of Adoption in Relation to Predictor Variables (N = 406)

Variable	Precontemplation/ Contemplation % (N=97)	Relapse % (N=90)	Action % (N=60)	Maintenance % (N=159)	p-value
Sociodemographic Characteristics					
Age					
18-39	27	24	32	51	<0.001
40-59	37	53	60	42	
>60	36	22	8	8	0.192
Buddhist	91	83	92	91	0.004
Marital Status					
Never Married	6	16	14	26	
Currently Married	47	45	53	44	
Previously Married	47	39	34	30	
Any formal education	47	53	50	64	0.038
Public housing resident	59	63	68	70	0.162
> 10 years in U.S.	73	87	88	89	0.004
<40 years at immigration	51	60	77	78	<0.001
Speaks English fluently	4	9	5	11	0.231
Acculturation Variables					
Illness is a matter of "karma"	60	44	43	38	0.007
Illness is a matter of fate	68	49	57	51	0.028
Women should have regular checkups	84	78	92	95	<0.001
Some cancers are curable if detected early	34	37	57	60	<0.001
Pap tests can prolong life	52	61	73	77	<0.001
Cervical Cancer Knowledge					
Cambodian women have an increased cervical cancer risk	5	2	5	7	0.489
Older women have an increased cervical cancer risk	31	30	47	52	<1.001
Pap tests are necessary for sexually active women	24	33	32	53	<1.001
Pap tests are necessary for post-menopausal women	30	38	67	63	<0.001
Social Support Variables					
Recommended by a friend	7	12	30	27	0.001
Recommended by a family member	9	8	20	26	0.001
Health Care Factors					
Received prenatal services in the U.S.	36	51	73	70	<0.001
Received family planning services in the U.S.	29	40	60	64	<0.001
Health insurance	88	90	87	84	0.564
Cost concerns	32	28	28	30	0.930
Physician recommendation	33	54	73	89	<0.001
Physician gender					
Female	24	30	35	47	0.013
Male	65	58	52	43	
No physician	11	12	13	11	
Preferred female provider	79	72	77	79	0.600
Physician ethnicity					
Asian	59	46	42	27	0.001
Other	31	42	45	62	
No physician	11	12	13	11	
Problems finding interpreters	69	48	57	54	0.023