RESEARCH ARTICLE

Factors Associated with Decisions to Attend Cervical Cancer Screening among Women Aged 30-60 Years in Chatapadung Contracting Medical Unit, Thailand

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Abstract

Background: This study aimed to identify factors associated with women's decisions to attend cervical cancer screening and to explore those linked with intention to attend in the coming year and to continue regular screening. Materials and Methods: A community based case-control study was conducted among woman 30-60 years of age in catchment area of Chatapadung Contracting Medical Unit (CCMU), networking of Khon Kaen Center Hospital, Thailand. Self-administered questionnaires were used to collect data, and in-depth interviews were then performed to explore in greater detail. Results: There were 195 participants. Only one third (32.3 %) had been screened for cervical cancer within the past 5 years. Some 67.7% reported that they had not been screened because they had no abnormal symptoms, single marital status, and no children. Only 10.6% of those never had screening intent to be screened within the next 12 months. High family income (adjusted OR=2.16, 95%CI=1.13-4.14), good attitude towards a Pap test (OR=1.87, 95%CI=1.09-4.23), and having received a recommendation from health care providers were important factors associated with decisions to attend cervical cancer screening (OR=1.73, 95%CI=1.01-4.63). From in-depth interviews, there were five reasons of their decisions to attend cervical cancer screening including yearly check-up, postpartum check-up, having abnormal symptom, encouragement by health care providers, and request from workplace. Conclusions: High family income, good attitude towards a Pap test, and receiving proper recommendation by health care providers, were important factors associated with decision to have cervical cancer screening among women 30-60 years old. Trying to enhance these factors and reduce barriers regarding screening, may increase the coverage rate for cervical cancer screening in Thailand.

Keywords: Cervical cancer screening - Pap smears - decision

Asian Pac J Cancer Prev, **15 (12)**, 4903-4907

Introduction

Cervical cancer is the second most prevalent cancer among women worldwide, with 500,000 new cases and 250,000 deaths reported each year (Armstrong, 2010). It occurs most often in women over age 30. This kind of cancer is a preventable and treatable if detected early, particularly in precancerous phase by using preventive methods such as avoiding risk factors, HPV (human papillomavirus) vaccination, and having cervical cancer screening test regularly. The general screening method by Papanicolaou (Pap) smear has been reported with dramatically reducing the number of cases of and mortality from cervical cancer in developed countries (Canavan and Doshi, 2000).

Pap smear is a simple cost-effective screening test carried by general practitioners at the primary health care level to detect abnormalities that might be a preliminary of cervical cancer (Richart, 1998). This test is the most essential element in prevention and control of developing cervical cancer (Elovainio et al., 1997). Women who have not had abnormal smears can stop screening about age 60 to 70 (Saslow, 2002). The incidence of cervical cancer could be reduced up to 80% by Pap smear screening every 3-5 years with an appropriate follow-up (Arbyn et al., 2010), however, participation in these screening programs varies according to women's personal and social characteristics.

In Thailand, cervical cancer is a second common cancer in Thai women but remains the most leading cause of death in this group (Martin and Patel, 2003; Attasara and Sriplung, 2013). Its incidence has been about 20 per 100,000 women or 6,000-7,000 new cases a year. Highest incidence is found in aged 45-55 (Sukumarn, 2010). HPV16 was found the most prevalent genotype in women from all regions of Thailand (Suthipinthawong et al., 2011). The highest prevalence of HPV infection was identified in the youngest age group (≤30 years) (Swangvaree et al, 2010). The Healthy Thailand Policy by the Ministry of Public Health recommended that Thai

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women aged 30 to 60 years should be screened for cervical cancer at least every five years by any methods (Pap smear, Visual Inspection with Acetic Acid [VIA], or HPV testing). The goal is to achieve the coverage rate of screening tests up to at least 80 percent among the target women.

Khon Kaen, located in northeastern part of Thailand, is one of a province that realizes the importance of cervical cancer screening. The Provincial Public Health Office has set a goal of screening for cervical cancer according to the standard requirement that 80 percent of women aged 30-60 years-old should be screened by Pap test. However, in the years 2010, 2011, and 2012, women have been screened for cervical cancer in accounting to 18.89%, 21.81%, and 24.59% respectively, which is lower than the specified goal mentioned above.

Coverage rates of cervical cancer screening in cachment area of Chatapadung Contracting Medical Unit (CCMU), one of the primary health care networking of Khon Kaen Center Hospital were reported annually. From the annual records of The Social Medicine Department, they were 1.87, 1.05, and 1.07, in the years 2010, 2011, and 2012, respectively. These data indicated that the coverage rates of screening each year were very low, and the trend was steadily decreased. Thus, our study aimed to identify the factors associated with women's decision to attend cervical cancer screening in CCMU. In addition, we also needed to explore factors associated with women's intention to attend cervical cancer screening in the coming year and to continue their regular screening for cervical cancer.

Materials and Methods

Study site

This study was conducted in CCMU, a primary health care networking of Khon Kaen Center Hospital. The study was approval by The Local Committee of Human Research in Khon Kaen Center Hospital prior to implement the study.

Participants and sampling

This study was a community-based case-control study. From October-December 2013, women were recruited using systematic sampling from medical record in CCMU. Inclusion criteria for participation were women 30-60 years, living and/or working in Khon Kaen at the time of survey, can read and write in Thai language, and willing to provide written informed consent. We used an eligibility screening form to assess whether these criteria were met. The samples were divided into case and control group. Case was defined as woman who has ever had Pap test within the past 5 years, while control was defined as woman who has never had Pap test within the same period of time. Sample size was calculated by using sample-size-calculation method for case-control study (Schlesselman, 1982). N should be 162 persons and 20% should be added up just in case of the non respondents, therefore, the total sample size should be 196.

Data collection

We hypothesized that the factors influencing women's decisions to have been screened would cover all of the three major components: demographic, psychosocial, and health services. The demographic component includes income level, education level, marital status, and number of children. The psychosocial component includes beliefs about susceptibility to, and the severity of cervical cancer, general knowledge about cervical cancer and cervical cancer screening, and barriers to screening including fear of pain, and embarrassment. The health care component includes barriers, such as limited access to testing facilities, and limitations in services.

The data collection instrument was a self-administered questionnaire. There were two outcome variables of interest; (1) having ever had a Pap smear within the last 5 years, and (2) having never had a Pap smear within the last 5 years. Predictive variables of interest for both outcomes included; (1) marital status, (2) educational level, (3) income, (4) occupation, (5) number of children, (6) underlying disease, (7) reason for decision to attend cervical cancer screening recommendations and risk factors for developing cervical cancer, (8) knowledge about cervical cancer screening recommendations and risk factors for developing cervical cancer (9) attitudes toward prevention, risk, severity, and the cure rates of cervical cancer, and (10) barriers to screening including fear, cost, and embarrassment. An in depth interview was also conducted with ten participants who willing to provide more detail about the about the reason for decision to attend or not attend the cervical cancer screening.

Data analysis

The absolute and relative frequencies (n and %) were obtained for the distributions of the selected variables by "ever had Pap within the last 5 years" and "never had Pap within the last five years." The General Association Statistic was used to determine differences in the distributions of the selected variables by "ever had Pap" and annual screening status. Odds ratio (OR) and 95% confidence interval (CI) were generated as measures of association for all variables by Pap status in the past five years. Both crude and adjusted measures of association were generated for all variables. All ORs and 95%CIs were calculated from logistic regression equations. Missing values were excluded from the analysis. Analysis was conducted with STATA software, version 13.0 (SAS Institute, Inc, Cary, NC). All reported P values are two-tailed.

Results

Characteristic of the sample

There were 195 participants (Table 1), and the majority of sample was within younger age group (30-46 years-old). Approximately half of them were employed and had high income (more than 15,000 baht per month). Most of them were married and had multi-parities. Less than 10 percent reported having abortion. Hypertension was the most common underlying disease. More than eighty percent had sexual intercourse. Although more than half of them were advised for cervical screening, only one third (32.3%) had been screened within the past 5 years.

Overall, 14.4% had high score of knowledge regarding cervical cancer screening, whereas 53.9% had good attitude toward Pap smear as a cervical cancer screening.

Reasons for no cervical cancer screening

From the 195 recruited women, 132 (67.7%) participants reported that they had not been screened for cervical cancer within the past 5 years (Table 2). Most common reason for having never been screened in these women and will not be screened this coming year in those who had been screened within the past 5 years were "no abnormal symptom." "Single marital status" and "no children" were reported as the second important reason for no screening. Only 10.6% intended to be screened within the next 12 months. Additionally, the health care center where participants mostly needed to have their Pap smear screening was their primary care center (CCMU).

Crude and adjusted odds ratios for having a cervical cancer screening

Multiple logistic regressions were used to evaluate the risk factors for having a cervical cancer screening among the participants and to control for possible confounding factors. Table 3 indicates that family income, receiving advice to be screened, and having good attitude towards cervical cancer screening, were significantly associated with decision to take a screening test. Women who had monthly family income of more than 15,000 baht had 2.16 times more likely to had been screened compared with women who had monthly family income of less than 15,000 baht (Adjusted odd ratio=2.16, 95%CI=1.13-4.14). Women who received advice to be screened were more likely to take a screening test (Adjusted odd ratio=1.87, 95%CI=1.09-4.23). Moreover, women who had good attitude were also more likely to have cervical cancer screening than those who had poor attitude (Adjusted odd ratio=1.73, 95%CI=1.01-4.63).

Decision to have cervical cancer screening

Ten women took part in the in-depth interview. There were five reasons of their decision to have cervical cancer screening. 8 of them decided to have screening because it is a part of their yearly check-up, and 5 of them stated that they took it due to their postpartum check-up. 4 of them mentioned that abnormal symptoms leaded them to have screening. Encouragement by health care providers was another reason mentioned by 3 participants, whereas 2 of them took cervical cancer screening due to request from their workplace.

Table 1. Baseline Characteristics among the Recruited Women Aged 30-60 Years-old

Variables			N=195	%
Age	30-46		105	53.8
	>46		89	46.2
Mean 45.6, Min 30, Max 60				
Occupation	Housewife		50	25.6
	Own business		65	33.3
	Officer/Employee		79	40.5
	Other		1	0.5
Education	Lower than college		118	60.5
	College and higher		77	39.5
Marital status	Single		16	8.2
	Married		163	83.1
	Widow/Separated		17	8.7
Income	<15,000		90	46.1
(baht per month)	>15,000		105	53.9
Parity	0		25	12.8
	3		141	72.3
	>2		29	14.9
History of abortion	No		181	92.8
	Yes		14	7.2
Underlying disease	DM		8	4.1
	HT		15	7.7
	Others		4	2.1
Sexual intercourse	No		23	11.8
	Yes		172	88.2
First SI (n=172); Mean 20.0, Min 16, Max 38				
History of Pap smear in 5 years		No	132	67.7
		Yes	63	32.3
Having advice to screen cervical cancer		No	37	20
		Yes	158	80
By whom	Neighbor			
	Health care volunteer			
	Heath care providers			
	Others			
Knowledge regarding Pap smear screening		<12 scores	167	85.6
(total score=15)		13-15 scores	28	14.4
Mean 11.2, Min 8, Max 13				
Attitudes toward Pap smear screening		Poor (<94)	90	46.1
		Good (>94)	105	53.9

Discussion

In Thailand, women 30 to 60 years of age can take cervical cancer screening, by VIA or Pap smear, without any cost from the health care center supported by the national policy promoting routine screening carried out every five years. The coverage rates of cervical cancer screening are relatively low in women living in CCMU as only one third of women had been screened within 5 years. There were available data concerning rates of Pap smear in Khon Kaen, however, the factors associated with cervical cancer screening among women in the city

Table 2. Reasons for No Cervical Cancer Screening (more than one choice)

Reasons	N=132	%
Reasons for no screening		
No symptom	30	22.7
Financial problem	2	1.5
No children	10	7.5
Single	10	7.5
Post-menopause	1	0.7
No time	7	5.3
Reasons for no cervical cancer screening in this coming year (but have been screened within the past 5 years)		
No abnormal symptom	11	8.3
Normal result in previous year	6	4.5
Fear	5	3.8
Intention to be screened within the next 12 months (in case of never been screened)		
No	14	10.6
Yes	14	10.6
Health centers where need to have screening		
Khon Kaen Hospital	7	5.3
Srinagarind Hospital	1	0.7
Mother-Child Health Center 6	2	1.5
Private clinic/ hospital	1	0.7
Primary care (Chatapadung)	9	6.8
Others	2	1.5

Table 3. Crude and Adjusted Odds Ratios for Having a Cervical Cancer Screening

Factors		Control (N=132) no. %	Case (N=63) no. %	Crude odd ratios/ 95%CI	P	Adj. odd/ 95%CI	P
Age	30-46	69 (52.3)	37 (58.7)	1			
	>46	63 (47.7)	26 (41.3)	0.77 (0.40-1.47)	0.37	-	-
Marital status	Single	11 (8.3)	5 (7.9)	1			
	Married	111 (84)	51 (81.0)	1.01 (0.3-3.89)	0.98	-	-
	Widow/Separate	10 (7.5)	7 (11.1)	1.54 (0.29-8.29)	0.55		
Education	Lower than college	87 (65.9)	31 (49.2)	1	*	1.33	0.39
	College and higher	45 (34.1)	32 (51.8)	1.99 (1.03-3.84)	0.02	(0.69-2.57)	
Occupation	Housewife	35 (26.5)	16 (25.4)	1			
	Own business	52 (39.4)	26 (41.3)	1.09 (0.48-2.52)	0.82	-	-
	Officer/Employee	45 (34.1)	21 (33.3)	1.02 (0.43-2.42)	0.95		
Family income (baht/month)	<15,000	64 (48.5)	41 (60.1)	1	*	2.16	0.02
	>15,000	68 (51.5)	22 (34.9)	1.98 (1.02-3.88)	0.03	(1.13-4.14)	
Parity	0	21 (15.9)	4 (6.3)	1	*		
	1-2	86 (65.2)	55 (87.3)	3.18 (0.98-13.4)	0.03	1.41	0.13
	>2	25 (18.9)	4 (6.3)	0.84 (0.13-5.11)	0.81	(0.84-3.58)	
History of abortion	No	122 (92)	59 (93.7)	1		-	-
	Yes	10 (7.5)	4 (6.3)	0.83 (0.18-3.02)	0.76		
Sexual intercourse	No	20 (15.2)	3 (4.8)	1	*	0.86	0.09
	Yes	112 (84)	60 (95.2)	1.57 (0.99-17.4)	0.05	(0.32-12.32)	
Having advice to be screened	No	20 (15.2)	17 (27.0)	1	0.04	1.87	0.03
	Yes	112 (84)	46 (73.0)	1.48 (0.21-2.08)		(1.09-4.23)	
Knowledge regard to screening	≤12	118 (89)	50 (79.4)	1	0.06	-	-
(score=15)	13-15	14 (10.6)	13 (20.6)	2.19 (0.88-5.14)			
Attitudes toward screening	Poor (<94)	45 (34.1)	31 (49.2)	1	*	1.73	*
	Good (>94)	87 (65.9)	32 (51.8)	0.53 (0.28-1.03)	0.04	(1.01-4.63)	0.04

of Khon Kaen have not been reported. From this study, the systematic identification of factors associated with cervical cancer screening had led to clearly understood of the characteristics of women who had been either screened or unscreened. Additionally, the reasons of no screening among the recruited women had been deeply explored.

These findings indicate several factors associated with having had a cervical cancer screening. Among baseline characteristics, family income was significantly associated with having had a Pap test. Thai women who had higher monthly family incomes were more likely to have been screened by Pap test similar to other studies in Thailand (Pornsinsiriruck, 2007; Chesun et al., 2012) and in Taiwan (Lin, 2008). Level of income could affect to health seeking behaviors, for instance women who had low income were hardly to take a cervical cancer screening. In addition, women from low income backgrounds were often not able to utilize public services due to long working hours or inability to access public services due to long distances (WHO, 2013).

Women's attitudes and beliefs towards cervical cancer and the importance of screening test could also reflect the behavior of screening by Pap test. A study in Thailand indicated that attitude towards Pap test was a predicting factor to take cervical cancer screening (Pornpikanon, 2008). The results from this present study found that women had good attitude toward cervical cancer screening more likely to take Pap test than those had poor attitudes.

Adequate information is very important factor to encourage woman to screen cervical cancer. Study in Vietnam found that more than 70% of women who took Pap test receiving enough information regarding to cervical cancer (Paul et al., 2012). Moreover, advice from health care providers was an important factor for intention to receive screening services, while recent study in Thailand indicated that husband and her family members were also the important factors (Srisakul et al., 2011). Women had often been recommended to receive a cervical cancer screening from health care providers or physicians. Study in Thai Muslim women indicated that women who received a recommendation by a clinician were more likely to take a Pap test (Chesun et al., 2012). Different studies showed similar outcomes which indicated that women who received routine check-up had a higher chance to have been screened by a Pap test (Hislop et al., 2003; Taylor et al., 2004).

Findings from this study supported previous different studies regarding to the barriers of Pap smear screening (Al-Naggar et al., 2010; Srichan, 2007). Among all of the perceived barriers, inadequate knowledge and perception regarding to cervical cancer screening were the most important barriers. Most of women who had never taken Pap test perceived that "no symptom" meant that it was unnecessary to be screened. By having no symptom, it seemed that they did not consider themselves having high risk for cervical cancer. Single marital status and no children were also perceived as lower risks for cervical cancer. Women who were single and had no children usually decided not to have a Pap test, while women with multi-parities were more likely to have it. A study in Canada also found the similar findings that indicated no history of childbirth was a significant predictor of not having Pap smear (Helen, 2013).

Having no time was one of the important barriers to take a Pap test. This finding was consistent with the result of a study in Pathumthani province (Chiamchanya et al., 2004). Additionally, embarrassment, fear regarding to inserting tool, and knowing of the results, were also important factors leading to no screening, which these similar results were found in former studies (Al-Naggar et al., 2010; Srisakul et al., 2011). To minimize these barriers, setting a private place for examination, treating women

politely and gently, and educating them before check up, would properly provide by care-providers at all health centers. What surprising in this study was that the intention to take a Pap test in the coming year, among women who have never had a test within the past 5 years, was very low (10.4%). The re-call method should be implemented to encourage patients who had previous negative smear to repeat a pap smear (Abdul Rashid, 2013). The main limitation of this study is that, as it is a single community-based study, with some part of memory-based, recall biases could be anticipated.

In conclusion, high family income, good attitude towards a Pap test, and received proper recommendation from health care providers, were important factors associated with decision to have cervical cancer screening among women 30-60 years old. Physicians and health care providers have important roles in enhancing knowledge regarding to cervical cancer screening of Thai women. That encouraged them to have a cervical cancer screening. To overcome the main barriers, particularly fear, health care providers should be well trained to be able to identify cervical abnormality and perform an adequate (good quality) Pap smear screening. Moreover, village health volunteers should be trained to develop strategies encouraging women who have never been screened for cervical cancer. Coverage rates of cervical cancer screening may be raised up to 80% by using all of these measures, together.

Acknowledgements

The authors are grateful to Ms Aram Suwanno for her kind valuable advices, and also, would like to thank all the women participated in this study. In addition, authors thank the secretary of Social Medicine Department, Khon Kaen Center Hospital, for their kind helps.

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