

## RESEARCH ARTICLE

# Perceived Susceptibility, and Cervical Cancer Screening Benefits and Barriers in Malaysian Women Visiting Outpatient Clinics

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### Abstract

**Aims:** A main reason for increasing incidence of cervical cancer worldwide is the lack of regular cervical cancer screening. Coverage and uptake remain major challenges and it is crucial to determine the perceived susceptibility to cervical cancer, as well as the benefits of, and barriers to, cervical cancer screening among women. **Materials and Methods:** A cross-sectional survey was conducted among 369 women attending an outpatient centre in Malaysia and data were collected by administering a self-report questionnaire. **Results:** The majority of the participants (265, 71.8%) showed good level of perception of their susceptibility to cervical cancer. Almost all responded positively to four statements about the perceived benefits of cervical cancer screening (agree, 23.1% or strongly agree, 52.5%), whereas negative responses were received from most of the participants (agree, 29.9% or strongly agree, 14.6%) about the eleven statements on perceived barriers. Significant associations were observed between age and perceived susceptibility ( $\chi^2=9.030$ ,  $p=0.029$ ); between employment status ( $p<0.001$ ) as well as ethnicity and perceived benefits ( $p<0.05$  [ $P=0.003$ ]); and between education and perceived barriers to cervical cancer screening ( $p<0.001$ ). **Conclusions:** Perceived susceptibility, including knowledge levels and personal risk assessment, should be emphasized through education and awareness campaigns to improve uptake of cervical cancer screening in Malaysia.

**Keywords:** Cervical cancer - susceptibility - screening - benefits - barriers - Malaysia

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### Introduction

Cervical cancer is the leading cause of mortality among women worldwide (Ferlay et al., 2010). However it is also the most preventable type of human cancer because of its slow progression, cytological identifiable precursors and effective treatments (Lee et al., 2002). Many countries in Asia and Africa face the biggest challenge with half a million new cases of cervical cancer reported yearly which result in 250,000 deaths occurring every year (Ferlay et al., 2010; Ezechi et al., 2013).

The National Cancer Registry of Cancer Incidence in Malaysia (2006) showed that cervical cancer constituted 12.9% of total female cancers (Lim and Halimah, 2004). The National Health and Morbidity Survey II in Malaysia reported that 80% of patients with cervical cancer presented at advanced stages of the disease and 10.5% of deaths among women in 2002 were due to cancer of the cervix (Al-Naggar and Zaleha, 2010).

The increasing incidence of cervical cancer is often associated with lack of regular cervical cancer screening and follow-up of abnormalities (Stuart et al., 1999; Sung et

al., 2000; Ferlay et al., 2010; Scarinci et al., 2010; Tejada et al., 2013). Previous studies also showed that regular uptake of cancer screening and follow-up reduces the incidence of cervical cancer (Ries et al., 2003).

The most common cervical cancer screening method, the Papanicolaou (Pap) cervical cytology screening, has been proven to reduce cervical cancer rates dramatically through early detection of premalignant lesions (Devesa et al., 1997; Nygard et al., 2002).

Even though cervical cancer screening is proven to reduce cervical cancer incidence, many factors influence the screening uptake among women. Factors such as poor awareness of the benefits of the Pap smear test, lack of knowledge about cervical cancer and its risk factors, fear of being embarrassed by health care workers, fear of pain and fear of getting a positive result, have become major hindering factors in cancer cervical cancer screening (Flyan, 1998).

Previous studies have shown that individuals who believed they had risk factors for cervical cancer and perceived susceptibility to an illness were more likely to take action to prevent an adverse outcome subsequent to

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getting the disease (Saslow et al., 2002). The perception that one is not at risk of cervical cancer has been verified in previous studies as a reason for not obtaining Pap smear tests (Rajkumar, 2012). The importance of high perceived susceptibility will influence positive perception of the importance of preventive measures.

In another cross-sectional survey by McFarland (2003), it was found that only 40.0% of participants had Pap smear tests and that the major barriers to obtaining Pap smear tests included inadequate knowledge about the benefits of Pap smear screening, insufficient information about the Pap smear screening procedure, provider's attitudes, and limited access to physicians.

Other barriers to uptake of cervical cancer screening programs include lack of female screeners in health facilities, inconvenient clinic times, anxiety caused by receiving an abnormal cervical smear result, poor understanding of the cervical cancer screening procedure and a need for additional information (Bessler et al., 2007; Flyan, 1998; Mc Farland, 2003). A population-based study by Stuart et al. (1999) showed that 46% of women with cervical cancer in Canada and 53% in USA did not have a Pap smear test within 3 years of being diagnosed.

In a cross-sectional study conducted among clinic attendees in Trelawney, Jamaica in 2007, 18% of women who had never had a Pap smear reported that it was not necessary as it would only increase a woman's anxiety if the results were found to be suggestive of cervical cancer. A survey in Thailand conducted by Schulmeister and Lifsey (1999) and another by Suwaratchai (1997) concluded that Asian women, in particular Thai women, believe that it is more beneficial to do Pap smears if one is married, compared to being unmarried.

The coverage and uptake of cervical cancer screening remains a major challenge in Malaysia. A cross-sectional study conducted in 2009 showed that the uptake of cervical cancer screening has remained very low while the mortality and morbidity associated with cervical cancer has remained high (Wong et al., 2009). On the uptake of Pap smears, there has been no significant increase in the number of Pap smears for the past ten years, as it has constantly ranged from 350,000 to 400,000 (Mohd, 2008). The coverage of the Pap smear screening program in 1996 was only 26% (National Health and Morbidity Survey II, 1997). Given the current situation in Malaysia, this study was conducted to determine the perceived susceptibility to cervical cancer

## **Materials and Methods**

### *Study design and setting*

A cross-sectional survey was conducted in University Malaya Medical Centre, a teaching hospital in Kuala Lumpur. This centre is the main referral hospital in central Malaysia. The number of patients visiting the primary health clinic range from 11,000 to 13,000 per month.

### *Study sample*

The population sample for this study was women attending the Outpatient Department of University Malaya Medical Centre. The inclusion criteria was women

between ages of 21 and 65, which is the eligible age group for cervical cancer screening as recommended by the Ministry of Health, Malaysia.

The samples were recruited during their regular appointment with doctors in the primary health care clinics. Interviews were conducted between December 2011 and April 2012. The participants were recruited based on the inclusion criteria. The information on the study was given to them. Confidentiality of their data was assured.

### *Ethical considerations*

Ethical approval was obtained from the Ethics Committee of University Malaya Medical Centre.

### *Data Analysis*

All the data collected were analysed using Statistical Package for Social Sciences (SPSS) version 20. The demographic data of the respondents were analysed in term of frequency and percentage. All categorical variables were reported in frequency with percentage while numerical variables were reported in mean with standard deviation since normality is assumed.

In the section on perceived susceptibility, the scoring given is 0=NO and 1=Yes. The total scores were divided into three groups. A score of 0-3 was given for poor perception of cervical cancer, 4- 6 for moderate perception and 7-9 for good perception of cervical cancer.

For the section on perceived benefits (4 items) and the section on perceived barriers (11 items), both the scoring was based on 5 likert-type scale ranging from strongly agree (5) to disagree (1). The scores are as follows: 1- Strongly disagree, 2- disagree 3- not sure, 4- agree, 5 - strongly agree. The total scores for perceived benefits range from 5 to 20 marks, whereas for perceived barriers the subscale had a possible range of 11 to 55 marks.

Pearson chi-square test, Independent sample T-test and one-way ANOVA were used to determine the association between predictors towards outcome. Inferential data were analyzed using Spearman's Rho test to identify correlation between susceptibility and barriers to cervical cancer screening among women. The cronbach's alpha for 24 items in this questionnaire is 0.655. The cronbach's alpha for the section on perceived susceptibility is 0.630, on perceived benefits is 0.434 and on perceived barriers is 0.742.

## **Results**

### *Demographic characteristic*

A total of 369 patients were approached for the interviews, and all participated in the study (response rate 100%). As shown in Table 1, the participants' age ranged from 21 to 65 years, with a mean of 37.5 years (SD=10.03). The majority of the respondents were Malays (n=291, 78.9%), followed by Indians (n=43, 11.7%), Chinese (n=20, 5.4%) and others (n=15, 4.1%). The education level of the respondents was predominantly secondary (n=208, 56.4%) followed by tertiary (n=141, 38.2%) and primary (n=20, 5.4%). The majority of the respondents were employed (n=303, 82.1%). Of the total 369 respondents, 279 (75.6%) had previously been screened for cervical

cancer or had done a Pap smear, whereas 90 (24.4%) had never been screened for cervical cancer. A total of 180 respondents noted that they had undergone a Pap smear more than 4 to 6 years ago (n=180, 48.8%), followed by 85 who reported having a Pap smear 2 to 3 years ago (23%), 30 who did it a year ago (8.1%), 43 who did it 7 years ago (11.7%) and 31 who did it more than 10 years ago (8.4%).

#### Perceived susceptibility to cervical cancer

The women's perceived susceptibility to cervical cancer is shown in Table 2. About 265 (71.8%) women showed good perception of their susceptibility to cervical cancer, while about 11 (3.0%) showed poor perception of their susceptibility towards cervical cancer. The Cronbach's alpha for this section is 0.630.

**Table 1. Demographical Characteristics of Respondents**

Variables	Sample (N)	Percentage (%)
Age (37.5+ 10.0)		
Age group		
20-29	101	27.4
30-39	111	30.1
40-49	101	27.4
> 50	56	15.2
Ethnicity		
Malay	291	78.9
Chinese	20	5.4
Indian	43	11.7
Others	15	4.1
Education		
Primary	20	5.4
Secondary	208	56.4
Tertiary	141	38.2
Employment		
Unemployed	66	17.9
Employed	303	82.1
Cervical cancer screening status		
Done screening	279	75.6
Never done screening	90	24.4
Cervical cancer screening		
Within 1 year	30	8.1
2 to 3 years	85	23
4 to 6 years	180	48.8
7 to 9 years	43	11.7
Above 10 years	31	8.4

**Table 2. Perceived Susceptibility to Cervical Cancer**

	Sample (N)	Percentage (%)
Poor perception	11	3
Moderate perception	93	25.2
Good perception	265	71.8

**Table 4. Perceived Barriers to Cervical Cancer Screening**

Item Barriers	Strongly Disagree N (%)	Disagree N (%)	Not Sure N (%)	Agree N (%)	Strongly Agree N (%)
It is too embarrassing to do cervical cancer screening.	24 (6.5)	37 (10)	48 (13)	164 (44)	96 (26)
Cervical cancer screening is painful.	42(11.4)	139 (37.7)	72 (19.5)	85 (23)	31 (8.4)
Woman has not had sex; cervical cancer screening will take away her virginity.	45(12.2)	55 (14.9)	104 (28.4)	96 (26)	69 (18.9)
Only women who have had babies need to do cervical cancer screening.	117(31.7)	110 (29.8)	65 (17.6)	53 (14.4)	24 (6.5)
Doing cervical cancer screening will only make one worry.	42(11.4)	100 (27.1)	52 (14.1)	124 (33.6)	51 (13.8)
My husband will not want me to do cervical cancer screening.	114(30.9)	130 (35.2)	73 (19.8)	35 (9.5)	17 (4.6)
Lack of female screeners in health facilities is a reason for not doing cervical cancer screening.	71(19.2)	86 (23.3)	57 (15.4)	111 (30.1)	44 (11.9)
Attitudes of health workers can discourage one from going for cervical cancer screening.	59(16.0)	113 (30.6)	53 (14.4)	144 (39.0)	30 (8.1)
Not knowing where to go for cervical cancer screening is a reason why people don't do cervical cancer screening.	66(17.9)	109 (29.5)	39 (10.6)	124 (33.6)	31 (8.4)
Lack of convenient clinic time is a barrier to routine cervical cancer screening.	52(14.1)	71 (19.2)	31 (8.4)	152 (41.2)	63 (17.1)
Lack of information about cervical cancer screening procedures is a barrier to uptake.	30 (8.1)	57 (15.4)	25 (6.8)	157 (42.5)	100 (37.1)

#### Perceived benefits of cervical cancer screening

Based on Table 3, most of the respondents (n=330, 89.5%) believed screening was able to identify changes in the cervix before they developed into cancer. About 325 (88.1%) respondents believed that early identification of cervical cancer enabled the disease to be easily cured. On the other hand, the majority of the respondents (n=257, 69.6%) did not believe that cervical cancer screening improves their chances of pregnancy. Overall, the majority of the participants responded positively to statements about perceived benefits. The cronbach's alpha for this section is 0.434.

#### Perceived barriers to cervical cancer screening

Most participants (n=260, 70%) believe that undergoing cervical cancer screening is embarrassing. More than 68% (n=253) of the women were unsure about whether cervical screening caused pain. The majority of the respondents (n=227, 62%) did not believe that only women who had babies should go for cervical cancer screening, while 77 (20.9%) believed the statement. Only 52 (14.1%) respondents said that their husbands would forbid them from going for cervical cancer screening, while 244 (66.1%) respondents said their husbands allowed them to go for screening.

The majority of the respondents (n=165, 45%) believed that cervical cancer screening would cause them to lose their virginity, whereas 100 (27%) respondents believed that cervical cancer screening would not affect their virginity and another 104 (28%) were unsure. Most of the respondents 175 (47%) felt that doing cervical cancer screening would cause worry, whereas about

**Table 3. Perceived Benefits of Cervical Cancer Screening**

Item Benefits	Strongly Disagree N (%)	Disagree N (%)	Not Sure N (%)	Agree N (%)	Strongly Agree N (%)
It is important for a woman to have cervical cancer screening.	17(4.6)	0	4(1.1)	60(16.3)	288(78)
Cervical cancer screening can find changes in the - cervix before they become cancer.	5(1.4)	8(2.2)	26(7.0)	105(28.5)	225(61.0)
Early detection of cervical cancer makes it easily curable.	8(2.2)	11(3)	25(6.8)	107(29)	218(59.1)
Doing cervical cancer screening can help improve the - chances of an infertile woman becoming pregnant.	72(19.5)	83(22.5)	102(27.6)	68(18.4)	44(11.9)

**Table 5. Correlation between Demographic Data with Perceived Susceptibility, Perceived Benefits and Perceived Barriers**

Variables	Sample (N)	Perceived susceptibility		Perceived benefits		Perceived barriers		
		Mean±sd	p value	Mean±sd	p value	Mean±sd	p value	
Age	20-29 years	101	9.14 (1.3)	0.029	16.33 (2.1)	0.450	34.5 (6.9)	0.055
	30-39 years	111	9.95 (1.7)		16.51 (2.1)		32.7 (7.2)	
	40-49 years	101	9.58 (1.4)		16.25 (2.8)		32.6 (7.4)	
	>50 years	56	10.32 (1.7)		15.87 (2.5)		31.5 (7.3)	
Ethnicity	Malay	291	10.61 (1.4)	<0.001	16.48 (2.3)	0.003	32.8 (7.3)	0.294
	Chinese	20	10.50 (1.9)		16.65 (1.6)		32.4 (6.1)	
	Indian	43	11.98 (2.4)		15.21 (2.6)		33.5 (6.8)	
	Others	15	12.20 (1.7)		15.20 (2.2)		36.3 (7.9)	
Education	Primary	20	12.00 (2.5)	<0.001	15.10 (2.9)	0.056	36.7 (5.9)	<0.001
	Secondary	208	10.71 (1.6)		16.28 (2.6)		31.8 (7.5)	
	Tertiary	141	10.84 (1.7)		16.48 (2.0)		34.2 (6.7)	
Employment	Employed	66	10.69 (1.6)	<0.001	16.45 (2.2)	<0.001	33.1 (7.1)	0.632
	Unemployed	303	11.47 (2.0)		15.56 (2.9)		32.6 (7.7)	

\*Perceived susceptibility p-value = <0.001, Perceived benefits p-value = <0.05, Perceived barriers p-value = <0.05

52(14%) were not sure and 142(38%) said that it would not make them worry. The lack of female screeners in health facilities was a major barrier for the majority of respondents (n=155, 42%). However, about 157 (42.5%) did not believe that the lack of female screeners among health and health workers was a major barrier. The majority of the respondents (n=174, 47.1%) believed that attitudes of health workers can discourage one from going for cervical cancer screening, whereas 172 (46.6%) did not believe that statement. The lack of convenient clinic times is also a barrier to routine cervical cancer screening, as reported by 215 (58.3%) respondents whereas about 123 (33.3%) did not believe that statement. Not knowing where to go for cervical cancer screening was the reason given by 155 (42%) respondents for not doing cervical cancer screening, whereas 175(47.4%) did not agree. Finally, the majority of the respondents (n=257, 79.6%) believed that lack of information was a barrier to cervical cancer screening. Meanwhile about 87 (23.5%) respondents believed that lack of information was not a barrier to cervical cancer screening. The cronbach's alpha for this section is 0.742.

Correlation between demographic data with perceived susceptibility, perceived benefits and perceived barriers.

Table 5 showed that there is significant correlation between the demographic data and perceived susceptibility to cervical cancer where the p-value for age was p=0.029. Meanwhile, no significant correlation was shown for ethnicity, employment status and education level, where the p-value is <0.001.

Perceived benefits and demographic data such as age and education level were not significantly correlated, with p-value >0.05. However, employment status and ethnicity were significantly correlated with perceived benefits of cervical cancer screening where the p-value is >0.05.

Out of four variables, only the respondents' education level showed significant correlation where the p-value is <0.001. For age, ethnicity and employment status, no significant relationship could be seen with perceived barriers to cervical cancer screening, where p > 0.05 (age, p=0.055, ethnicity, p=0.294 and employment status, p=0.632).

## Discussion

The incidence rate of cervical cancer increases with age after a woman reaches 30 years. It has a peak incidence rate at the ages of 60-69 years, and declines thereafter. Worldwide, the high incidence of cervical cancer is associated with lack of regular cervical cancer screening and follow-up of abnormalities. Factors associated with reduced participation in, or low uptake of, cervical cancer screening programs are poor awareness of the indications and benefits of the Pap smear test, lack of knowledge about cervical cancer and its risk factors, fear of being embarrassed by health care workers, fear of pain and fear of getting a positive result (Flyan, 1998).

The information presented in this study reveals that the majority of the respondents (n=265;71.8%) showed good perception of their susceptibility to cervical cancer. This is in keeping with the National Health survey conducted in 1991 which revealed that most women understood that cervical cancer screening successfully detects cervical cancer early (Harlan et al., 1991). This is consistent with findings of a study conducted by Barron et al. (2001) which reported that the majority of the respondents believed that older women are at greater risk of having cervical cancer.

The findings of this study revealed that the majority of the respondents either disagreed or strongly disagreed that the risk of cervical cancer increases with parity. This finding is also supported by Agurto et al. (2004) and Suwatcharachaitiwong (2004), who found that respondents who were both screened for cervical cancer and never screened for cervical cancer either disagreed or strongly disagreed that the risk of cervical cancer increases with parity. The misconception that there is an association between parity and cervical cancer might be a contributing factor for the low uptake of cervical cancer screening. Thus, only respondents who perceived themselves as being susceptible to cervical cancer were more likely to take preventive actions compared to those who perceived themselves as not being susceptible.

In developed countries, people who perceive susceptibility to an illness take early preventive actions. However, the case is entirely different in most developing

countries where the preventive actions are usually viewed as an unnecessary practice and people believe in curative health actions instead (Vellozzi et al., 1996). A study of ethnicity influences on gynecologic cancer screening practices among women in Finland showed that their susceptibility to developing cervical cancer increases with age usually above the age of 50 years (Barron and Houfek, 2001).

A total of 94.3% (n=348) of the respondents agreed and strongly agreed that cervical cancer screening is important. The majority of the respondents also believed the importance of doing cervical cancer screening. This is consistent with studies in which the majority of subjects agreed that regular Pap smear screening will give them peace of mind, identify the problem before it becomes cancerous and is very necessary even if there is no family history of cancer (Burak and Meyer, 1997; (Agurto et al., 2004; Bessler et al., 2007; Burak and Meyer, 1997).

The mean score for perceived barriers (4.83) was more than 3, which reveals that most respondents have perceived barriers to cervical cancer screening. The main barriers identified in this study was lack of convenient clinic times and lack of information. This finding is similar to that of previous studies which reported a lot of barriers among those who had been screened for cervical cancer and those who had never been screened for cervical cancer, including pain from the procedure, lack of convenient clinic times, lack of information, not knowing where to go for cervical cancer screening, embarrassment about the procedure, having a partner who discouraged them from doing cervical cancer screening and lack of female screeners (Burak and Meyer, 1997; Agurto et al., 2004; Leyva et al., 2006; Bessler et al., 2007). In five studies among Latin American women as well as the immigrant Hispanic population in the United States, similar findings were revealed, where the main barriers were reported to be access and associated barriers from the provision of health services, such as lack of privacy, inconvenient clinic schedules, and unavailability of female providers, insensitive staff, and poor counselling (Agurto et al., 2004).

Another important barrier mentioned by the participants was lack of information about screening sites, as found by Abotchie and Shokar (2009). Ayinde et al. (2004) also reported that 16% of the study participants lacked knowledge about centers where the test could be done. In addition, Aniebue and Aniebue (2010) found that 34% of the participants did not know where to obtain a Pap smear. This barrier can be easily addressed by providing women with information on where to go for Pap smear tests.

Meanwhile, nearly half of the study participants mentioned that Pap smear tests will affect their virginity. Similar findings have been reported by Abotchie and Shokar (2009). This may be due to lack of knowledge, as well as the cultural factors and background of the respondents.

Embarrassment was also reported as one of the barriers among these study participants. Similar studies have also included embarrassment as one of the barriers among the participants (Ganguly, 1995; Bener et al., 2001; Maaita and Brakat, 2002; Gamarra et al., 2005; Lovell et al., 2007).

This study's finding that healthcare workers did not

provide encouragement or information was supported by studies conducted in South Africa (Wellensiek et al., 2002), among Vietnamese-American women (Nguyen et al., 2002) and in Argentina (Gamarra et al., 2005). The importance of providing encouragement or information has been demonstrated in cases where healthcare workers send reminders about cervical cancer screening to raise screening rates among communities in other parts of the world (Byles et al., 1994).

The pain and discomfort associated with a Pap smear test, which was reported as a barrier in this study, was also similar to other previous studies where misconception about the test being painful was one of the barriers faced by the participants (Bener et al., 2001; Maaita and Brakat, 2002; Gamarra et al., 2005). The less common barriers reported among respondents in this study was lack of encouragement from their partner. Abotchie and Shokar (2009) also reported this as one of the barriers. This finding has implications for public health interventions and suggests that broad-based public health initiatives will be needed to overcome these barriers (Abotchie and Shokar, 2009).

In the relationship between demographics and perceived susceptibility, the findings show that there is significant correlation between demographic data (age, ethnicity, education and employment status) with perceived susceptibility to cervical cancer, where p value shows < 0.001. The information revealed from this survey found that older women, those of Indian ethnicity, those who have only primary education and those who are unemployed have poor knowledge regarding their perceived susceptibility. Similar studies support this finding, indicating a relationship between age and knowledge about cervical cancer screening (Maxwell et al., 2001).

In this study there was a significant correlation between race and perception. A similar finding has been reported by Tan et al. (2010). This may be due to the different traditions, beliefs and lifestyle practices of different races. Ethnicity is the most important predictor of cervical screening uptake (Moser et al., 2009). Lower uptake of cervical cancer screening programs among minority ethnic women may be due to lack of information regarding the concept and purpose of screening, fear and embarrassment, language barriers and cultural embargos from male partners, as well as the way in which information is communicated (Chiu, 2004).

The findings in this study also show that women with only primary education have poor perception of their susceptibility to cancer. Similar findings have been reported by Ayinde et al. (2004), where students of the College of Medicine had higher knowledge about cervical cancer screening. A possible explanation is that the medical students were more likely to be exposed to information on cervical cancer screening and its prevention in their studies. This is in line with the findings of Lindau et al. (2002), which suggested that health literacy is a better predictor of cervical cancer screening knowledge than formal education (Unuigbo and Ogbeide, 1999).

In the relationship between demographic data and perceived barriers, this study reveals that there is no

significant correlation between socio-demographic characteristics (age, ethnicity and employment status) and perceived barriers to seeking cervical cancer screening (all p-values >0.05). This finding completely contradicts the studies conducted by Leyva et al. (2006), Bessler et al. (2007) and Agurto et al. (2004), which reported various barriers to cervical cancer screening among the poor, the less educated, single women and married women. In most previous studies, it was found that the socio-demographic characteristics of women had an influence on the rate of Pap smear testing (Akyüz et al., 2006; Kaku et al., 2008; Atar et al., 2009; Jun et al., 2009; Uysal and Birsal, 2009).

This study also indicates that there is no significant correlation between perceived susceptibility and perceived barriers to cervical cancer screening. Therefore perceived susceptibility is not the cause of women not participating in cervical cancer screening. This finding is supported by previous studies, which have found that perceived susceptibility was not a predictor of barriers to cervical cancer screening and although perceived benefits were high, it does not predict cervical cancer screening (Boonpongmanee and Jittanoon, 2007). Meanwhile, this finding completely contradicts that of previous studies, which reported that perceived susceptibility, perceived severity, perceived benefit and perceived barriers are significant predictors of cervical cancer screening (Glanz et al., 2002).

#### Limitations

This study was limited by its results, as it only represents the views of women attending the Outpatient Department in one site. Therefore, knowledge of, and barriers to, cervical cancer screening uptake in other clinics and departments could not be generalized.

In conclusion, cervical screening programs will remain a crucial strategy for preventing cervical cancer, even with the introduction of HPV vaccination. An effective and efficient screening program that incorporates behavior-based strategies should be given priority to increase screening coverage and to reduce the cervical cancer burden. Perceived susceptibility and perceived barriers should be emphasized through education and awareness campaigns as it was found to improve uptake of cervical cancer screening. This study recommends that health care providers and health educators target aspects of perceived susceptibility among their patients, including personal risk assessment. We believe that continued support and advertisement of cervical cancer screening programs along with innovative recruitment strategies will increase usage density and decrease unnecessary deaths from cervical cancer. The public must be educated and informed regarding the danger and burden imposed by cervical cancer not only to the individual but also to their family, community and country. Future research should engage many more researchers and demonstration projects to study the most cost-effective cervical cancer screening program. Therefore medical personnel, pharmaceutical companies, NGOs and the private sector have to work together to reduce the cervical cancer burden.

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