

RESEARCH COMMUNICATION

Knowledge and Barriers Towards Cervical Cancer Screening Among Young Women in Malaysia

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Abstract

Objectives: This study examined the level of knowledge and barriers towards cervical cancer screening of female university students. **Methodology:** A cross-sectional design was used for 287 female students at a tertiary institution located in Selangor, Malaysia. A name list of all students in the all faculties were obtained from each faculty's registrar and the ethics committee of the Faculty of Health and Life Sciences, approved the study. Respondents completed a consent form before they were given the questionnaire consisting of four sections: socio-demographic characteristics (six questions); risk factor of cervical cancer (six); knowledge about cervical cancer and the Pap smear test (ten); and finally barriers to Pap screening (eleven). Data were analyzed using SPSS version 13. **Results:** The prevalence of ever having had a Pap test was 6%. Majority of the participants had adequate knowledge about risk factors of cervical cancer. The highest knowledge about cervical cancer risk factor reported by the respondents was having more than one sex partner (77.5%), whereas the lowest was the relationship between HPV and cervical cancer (51.2%). Age, marital status, ethnicity, monthly family income and faculty were significantly associated with knowledge of cervical cancer screening ($p=0.003$; $p=0.001$; $p=0.002$; $p=0.002$; $p=0.001$ & $p=0.002$; respectively). The most common barriers of cervical cancer screening were the Pap smear test will make them worry (95.8%) whereas the least common barrier reported among participants was no encouragement from the partner (8.8%). **Conclusion:** Some misconceptions and barriers in uptaking Pap smear test are still serious problems among young women. Although knowledge about cervical cancer screening is adequate they have a very poor practice of Pap smear test. The introduction of reproductive health subjects is warranted for all university students.

Keywords: Cervical cancer screening - knowledge - barriers - perception - tertiary students

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Introduction

Cervical cancer is the most preventable disease, yet it remains the second most common cancer worldwide with over 500,000 new cases and 250,000 deaths annually (GLOBOCAN, 2000; WHO, 2009). However, it is the most common cancer in women in the developing countries; where over three quarters of the estimated half a million newly diagnosed cases occur annually (Babarinsa et al., 1998). Cervical cancer is a major public health problem worldwide. In developing countries, cervical cancer tends to present about 15 years earlier than it does in developed countries. It is therefore more aggressive variant of the disease probably occurs in developing countries (Ekanem and Abidoye, 1987). As many as 80% of diagnosed cases are detected in the advanced stages in which treatment, even when available, has a markedly reduced likelihood of success (Luthra et al., 1988). World Health Organization estimates that the contribution of cervical cancer to adult female death is 35% (WHO, 1986). World Health Organization predicts that by 2020,

the global incidence of cancer will increase to 16 million annually (WHO, 2007). Moreover, nearly three quarters of all cancer cases will occur in developing countries (Lindsay-Nanton, 2000).

Studies have established a strong association between cervical cancer and human papilloma virus (HPV) serotypes 16 and 18. The virus exerts greater effects during periods of rapid metaplasia in the cervical epithelium, mostly in the period of adolescence (Bosch et al., 1997). Therefore, certain sexual behaviors are known to prompt cervical cancer, such as, early sexual debut before 20 years and sexual promiscuity, either in the female or her partner. Almost all women will have an HPV infection at some point in their lives. About 50% of women have evidence of an HPV infection within the first 3 years of sexual debut (Collins et al., 2002). For HPV infections, 80%-90% are usually cleared by the immune system with two years of infection (Parent, 2008). Some of these factors include a woman's age at first sexual intercourse and number of lifetime sexual partners (Collins et al., 2005; Herrero et al., 2005).

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The number of sexual partners is the major independent risk factor, whereas age at first sexual intercourse is a confounder (Olukoya, 1989). In the United States, failure to screen has been associated with race and ethnicity, lower income status, limited education, non-English-speaking immigrants, and lack of health insurance (Garner, 2003). Cervical screening could be affected by marital status, age, shame, lower socioeconomic status, limited education, lack of access and fear of cervical cancer diagnosis were (Jepson, 2000; Agurto, 2001; Lewis, 2004). Young women (peak time: 20-24 years old) (Burk et al., 1996) and men (peak time: 25-29 years old) (Svare et al., 2002) are most at risk of infection and the younger a person starts sexual contact, the more likely they are to have a persistent HPV infection. Pap smear test is the main screening method used for the secondary prevention of cervical cancer. It can detect precancerous cells easily (Kotaniemi-Talonen et al., 2008). Pap smears effectively reduce the incidence of cervical cancer by 75-90% (Risendal et al., 1999).

In Malaysia, cervical cancer is ranked second after breast cancer (Ferlay et al., 2002) contributing 12.9% of all female Cancers (Lim & Halimah, 2004). Cervical cancer affects relatively young women compared with other cancers (Elit et al., 2009). As a result of the risk-taking behaviour of people in this age group, they are thought to be at increased risks of sexually transmitted diseases and possibly cervical cancer later in life. Some reasons that have been adduced for this include the fact that most of the undergraduates live away from home in school hostels, thereby weakening parental control and supervision. They become exposed to influences that encourage casual sexual relationship and have to take important decisions about their social and reproductive lives.

Many of them experiment with unprotected sex and multiple sexual partners as a result of intense peer influence. The prevalence of dysplastic cervical lesions as high as 29% was found in a study of sexually active adolescents in the United States. Therefore, there is a need to identify barriers to obtaining Pap smear in young women, as very scanty studies have filled this gap in this population. (Al-Naggar and Isa, 2010; Tan et al., 2010).

This study aimed to determine the level of knowledge about cervical cancer screening and its associated factors and to determine the barriers in uptaking Pap smear test. Findings from this study can help to provide meaningful information to health authorities and policy makers in order that cervical cancer screening services can be evaluated and further improved.

The cervical cancer screening program was established in 1969 in Malaysia to ensure early detection of cervical cancer among women aged 20-65 years. The Pap smear screening program was planned, organized and evaluated by the Ministry of Health, Malaysia in 2004. Yet, no reduction in the prevalence of cervical cancer has been noted to date. The major challenges are coverage and uptake of cervical cancer screening. The National Health and Morbidity Survey II reported that Pap smear coverage in the Malaysia is poor (NHMS II 1996). It has also been reported that 80% of patients with cervical cancer diagnosed at advanced stages of the disease in 198 (Azhar and Lopez, 1989) and 10.5% of deaths among

women were due to cancer of the cervix (Lim, 2002). The Second Report of the National Cancer Registry of Cancer Incidence in Malaysia showed that cervical cancer constituted 12.9% of total female cancers (Lim and Halimah, 2004).

Materials and Methods

Study design, location and population

Cross-sectional design was used in this study among Management and Science University students, Shah Alam, Malaysia. A total of 287 female university students (response rate 95.9%) from the Management and Science University (MSU), Shah Alam, Selangor participated. Questionnaires were distributed to all faculties in MSU namely: International Medical School (IMS), Faculty of Business and Management Professional (FBMP), Faculty of Health and Life Science (FHLS) and Faculty of Informative Science and Engineering (FISE). The number of the students to be studied in each faculty was proportionately determined using the total number of students in each faculty.

Female students less than 18 years old, foreigner female students and male students were excluded from this study. However the inclusion criteria were volunteer female students, 18 years old or more, Malaysian citizen and can speak English.

Procedures

In order to select the participants randomly, a list of names of all students in the specific faculty were obtained from each faculty's registrar. Male student's name was excluded from the original list and a new list was formed, which contains only female. Ethical approval from the ethics committee of the Faculty of Health and Life Sciences was obtained. Willing respondents completed the consent form before they were given the self-administered questionnaire. No personal identifying information was collected in the anonymous questionnaire. All participants were given a full explanation of the methodology and purpose of the project and an assurance of confidentiality. Participants were also assured that their participation in the study was voluntary and that they could refuse to participate at any time during the interview.

Instruments

The questionnaire was designed based on the literature review and consisted of four sections: Socio-demographic characteristics (six questions); risk factors (six questions); knowledge about cervical cancer and Pap smear test (ten questions); and finally barriers to undergoing Pap smear screening (eleven questions).

Data Analysis

Data obtained were analyzed using SPSS version 13. An independent T-test, was conducted to determine if there was a significant difference between the parameter studied. All tests were analyzed with the confidence interval, $\alpha=0.05$. The significance level (p value) was set at 0.05.

Table 1. Subjects Socio-Demographic Characteristics (n=285)

Variables	N	%
Age		
≤ 20	75	26.3
>20	210	73.7
Ethnicity		
Malay	234	82.1
Chinese	4	1.4
Indian	40	14.0
Others	7	2.5
Marital status		
Single	211	74.0
Married	74	26.0
Faculty		
IMS	155	54.4
FHLS	68	23.9
FBMP	56	19.6
FISE	6	2.1
Monthly Income (US\$1 = RM3.20)		
<RM 3000	221	77.5
>RM3000	64	22.5

Table 2. Knowledge of Risk Factors of Cervical Cancer Among Undergraduates University Students (n=258)

Risk factor	N (%)
There is a relationship between sexually active and cervical cancer	
Yes	221 (77.5%)
No	64 (22.5%)
Have more than one sex partner	
Yes	246 (86.3%)
No	39 (13.7%)
HPV	
Yes	146 (51.2%)
No	139 (48.8%)
Family history of cervical cancer	
Yes	209 (73.3%)
No	76 (26.7%)
Smoking	
Yes	174 (61.1%)
No	111 (38.9%)

Results

A total of 297 females participated in this study and 285 completed the survey, giving a response rate of 95.9%. The age range was 18 to 30 years old, with a mean of 20.9±1.89 years. Table 1 shows the distribution of respondents based on their demographic characteristics. The majority (73.7%) were older than 20 years old, Malay (82.1%), single (74.0%), from the international Medical School (54.4%) and their family monthly income less than RM3000 (US\$ 924). The reported prevalence of ever having had a Pap test among the study participants was 6%.

Knowledge of cervical cancer risk factors

Table 2 shows the knowledge of risk factors of cervical cancer among university students. Majority of the participants had adequate knowledge about risk factors of cervical cancer. The highest knowledge on the risk factors

Table 3. Barriers of Cervical Cancer Screening Among University Students (n= 285)

Variables	N	%
Pap smear test is too expensive		
Yes	137	48.1
No	148	51.9
Painful		
Yes	125	43.9
No	160	56.1
Pap Test make me worry		
Yes	237	95.8
No	12	4.2
Pap test is embarrassing		
Yes	130	45.6
No	155	54.4
Virginity will be taken away if pap test is done to the virgin woman		
Yes	126	44.2
No	159	55.8
Do not know where to go if you want to have Pap smear test		
Yes	128	44.9
No	157	55.1
partner does not allow you to do Pap smear test		
Yes	25	8.8
No	260	91.2
Any Health care workers advice you to do the test		
Yes	108	37.9
No	177	62.1

Table 4. Factors Influence the Knowledge of Female University Students Towards Pap Smear Test

Variables	N (%)	T	P-value
Age(years)			
≤ 20	75(26.3)	4.50	0.003
>20	210(73.7)		
Marital status			
Single	211(74.0)	18.03	0.001
Married	74(26.0)		
Ethnicity			
Malay	234(82.1)	37.57	0.002
Non-Malay	51(17.9)		
Family income			
<RM 3000	221(77.5)	22.79	0.001
>RM3000	64(22.5)		
Faculty			
Health & Medical	223(78.2)	24.21	0.002
Non-Health & Medical	62(21.8)		

was having more than one sex partner (77.5%), whereas the lowest was the relationship between HPV and cervical cancer (51.2%).

Barriers of cervical cancer screening among university students

The most common barriers of cervical cancer screening were the pap smear test will make them worry (95.8%), followed by no encouragement or information from healthcare workers (61.2%). The less common barrier reported among participants was no encouragement from the partner (8.8%) (Table 3).

Factors associated with the knowledge of cervical screening

Age, marital status, race, monthly family income and

faculty significantly influenced the knowledge of female university students regarding cervical cancer screening (Table 4).

Discussion

This study was limited to female university students. As university students represent the enlightened future of the country, their awareness of the risk factors for cervical cancer could go a long way in making primary prevention of the condition more effective on the long run. Therefore, this study examined the level of knowledge and barriers towards cervical cancer screening of female university students.

Only 6% of the study participants have had pap smear done, reflecting a rather low rate. Similar finding was reported among Nigerian female university students which report 8.3% of the participants had Pap smear test before (Ayinde et al., 2004). Similar finding was reported among female health professionals working in hospitals where facilities for the test are available showed similar negative attitude towards having a pap test (Olaniyan et al., 2000; Ayinde et al., 2004). Similar finding by Aniebue & Aniebue (2010) reported that the practice of cervical screening was low (5.2%). Similar finding was reported by Udigwe, (2000) reported low levels of practicing Pap smear test 5.7% amongst female health workers. Similar finding was reported by Hoque and Hoque, (2009) that 9.8% of the participants had the Pap smear test done which is higher than in this study. The reasons for poor screening uptake include uneven distribution of medical facilities in the country (Cheah and Looi, 1999), lack of knowledge about the availability of screening, and culturally-influenced reluctance to undergo cervical smear tests (Wong et al., 2006). This urges extensive health education among young women. Malaysia does not.

Development of cervical cancer in the majority of women occurs over many years, so these precancerous changes can be observed, followed, and treated (Garner, 2003). Official recommendation is for women to undergo the Pap smear test annually in the initial two years, and subsequently, once every three years, with priorities for sexually active women who are more than 35 years old, have more than five children, have practised contraception for more than five years or who are new acceptors of family planning services, and women diagnosed with sexually transmitted diseases. Women who attend postnatal and family planning services are primary targets (Chee et al., 2003).

This study showed that lowest knowledge about risk factors of cervical cancer was HPV. This is consistent with findings of the National Cancer Institute's 2005 Health Information National Trends Survey in the United States which showed that 20% of American women were aware that HPV can cause cervical cancer (Lambert, 2001). Therefore there is a need to educate young women on the role of HPV in the etiology of cervical cancer and its prevention. The mass media plays an important role in this context and its function should be optimized.

Regarding the barriers of cervical cancer screening; the most common barriers of cervical cancer screening

were the pap smear test will make them worry which is concurrent with similar research that reported anxiety and fear in association with participate in screening (Foxwell and Alder, 1993). The reason for anxiety in some patients has been suggested to result from the sensitive situation concerning intimacy associated with the examination. Similar findings were reported by other studies (Bener et al., 2001; Maaita and Brakat, 2002; Gamarra et al., 2005) reported that the fear of discovery of cancer is one of the barriers among study participants.

Followed by no encouragement or information from healthcare workers. Similar findings were reported from studies conducted in South Africa (Wellensiek et al., 2002), among Vietnamese American women (Nguyen et al., 2002) and Argentina (Gamarra et al., 2005). Healthcare worker reminder about the cervical cancer screening has been used to raise screening rates in communities in other parts of the world (Byles et al., 1994). This suggests that primary healthcare workers such as community health nurses should be an important part of any new program aimed at increasing cervical cancer screening rates (Abotchie and Shokar, 2009). Healthcare workers at the clinic can educate healthcare users, targeting the risk population on risk factors for cervical cancer and motivate them to have a Pap smear performed. Mandelblatt and Yabroff, (2000) acknowledged physician recommendation to be "one of the most powerful predictors of screening across all age, socioeconomic, and ethnic groups." The positive influence of physician recommendation on cancer screening uptake has been well documented in numerous studies in the United States (Burnett et al., 1995; Gulitz et al., 1998; Austin et al., 2002; Nguyen et al., 2002; Juon et al., 2003).

Healthcare providers influence women's screening behaviours. It was found that the under utilisation of cervical cancer screening might be due in part to a lack of physicians' recommendation. There appears to be a need to improve health education by healthcare providers, as women reported that they had never been informed of the existence and importance of Pap smears by healthcare professionals (Wong et al., 2009).

Another important barrier mentioned by the participants was lack of information about screening sites. A similar finding was reported by Abotchie and Shokar, (2009). Similar finding was reported by Ayinde et al., (2004) that 16% of the study participants had lack of knowledge of centres where the test could be done. Similar finding was reported by Aniebue and Aniebue, (2010) reported that 34% of the participants did not know where to obtain a Pap smear. The places of screening should be easily addressed with simple information provision.

Cost is one of the important barriers reported by almost half of the study participants. Similar finding was reported by Ayinde et al., (2004) that 5.9% of the participants mentioned that the cost is one of the barriers of cervical cancer screening. Similar finding was reported by Abotchie and Shokar, (2009). Malaysian government should make Pap smear test part of subsidized routine for women.

Nearly half of this study participants mentioned that Pap smear test will affect their virginity. Similar finding

was reported by Abotchie and Shokar (2009). This may be due to the lack of knowledge in this regard and may be due to cultural and the background of the respondents.

The less common barriers reported among participants was no encouragement from the partner. Similar finding by Abotchie and Shokar, (2009) reported that one of the barriers among their study participants that whether their partner would want them to have a Pap smear test. This finding has implications of public health interventions and suggests that broad based public health initiatives will be needed to overcome these barriers (Abotchie and Shokar, 2009).

Health education appears to have a prominent role to play in increasing awareness and addressing some of the negative biases the students have against the test (Ayinde et al., 2004). Awareness campaign should be intensified through hospital visits, mass media and public lecture (Ayinde et al., 2004).

Embarrassment was reported as barriers among these study participants. Similar studies reported that included embarrassment was the barriers among the participants (Bener et al., 2001; Maaita and Brakat, 2002; Gamarra et al., 2005). Embarrassment was confirmed by other reports (Ganguly, 1995; Lovell et al., 2007).

Regarding pain and discomfort associated with Pap smear test was reported as a barrier in this study. Similar studies reported that included misconception about the test being painful were the barriers among the participants (Bener et al., 2001; Maaita and Brakat, 2002; Gamarra et al., 2005). This may be a difficult barrier to overcome among asymptomatic women. Those who expressed this concern may have had painful and unpleasant experiences with prior Pap tests, or have heard about such experiences from others. To help women cope with concerns about pain and discomfort associated with Pap tests, interventions could focus on detailing the nature of the sample and teaching women some relaxation skills. In addition, the possibility of pain needs to be acknowledged rather than ignored so that women can feel a sense of trust.

This study showed that type of the faculty influence the knowledge of the undergraduate university students. Similar finding reported by Ayinde et al., (2004) stated that students of the College of Medicine had higher knowledge about cervical cancer screening. The possible explanation is that the medical students are more likely to have come across information on the cervical cancer screening and its prevention in their study. This is in line with the findings of Lindau et al, which suggested that health literacy is a better predictor of cervical cancer screening knowledge than formal education or ethnicity (Unuigbo and Ogbeide, 1999).

Similar studies supported our findings that there is a relationship between age and knowledge about cervical cancer screening. Another study also showed that age was associated with knowledge about Pap smear test (Maxwell et al., 2001).

In this study there is a relationship between race and knowledge and ethnicity. Similar finding was reported by Tan et al., (2010). It may be due to the different traditions, beliefs and lifestyle of different races.

The cross sectional nature of the survey means causal

inferences cannot be made from the results reported. Furthermore, the survey was self administered and is therefore open to the usual reporting biases inherent in such surveys. However, we believe that this was minimized because the survey was anonymous. Strengths of the study include the fact that we were able to access a population that has not been widely studied, and that this is one of the first studies describing knowledge and beliefs about cervical cancer in this population and reveals potential targets for interventions to improve cervical cancer screening rates.

One has to be cautious about generalizing to all tertiary women in Malaysia. Knowledge of risk factors and the need for regular cervical screening should be emphasized. In the universities, it may be worthwhile to introduce reproductive health as a compulsory general studies course for all university students. The mass media and the increasingly popular internet need to be put to better use as potent means of enlightenment. Information on cervical cancer and its prevention could be linked to universities websites and those websites that are popular among students and young people such as facebook.

HPV vaccines should be provided for free to children; in particular girls should be given the vaccine before they become sexually active, or between the ages of 10 and 12. In conclusion the reported prevalence of ever having had a Pap test was low among tertiary students. Several barriers contributed to this low uptake such as the Pap smear test will make them worry, cost of the test, painful procedure and no encouragement from the partner. It is thus warranted that reproductive health education about cervical cancer, sexually transmitted diseases and their prevention be given to high schools and higher institutions in Malaysia. Furthermore, more awareness programs should be conducted in University campus to provide students with knowledge on prevention of cervical cancer.

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