

RESEARCH COMMUNICATION

Cervical Cancer Screening: Patients' Understanding in Major Hospitals in Malaysia

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Abstract

We studied women with cervical cancer to determine whether they had had a Pap smear within the 3 years preceding cancer development and their understanding of screening for this cancer. The study had 2 parts; Pathology Data and Survey Data. For pathology data, all cases of cervical cancer diagnosed in 2000-2006 were retrieved from eight hospitals and Pap smear history was obtained from clinical records. For the Survey data; patients who were still undergoing treatment in some of these hospitals and three others were administered structured questionnaires to determine their awareness about screening. The results showed 1431 cases of cervical cancer in women aged 25-85 were diagnosed in these hospitals. Most had not had a Pap smear within 3 years before cancer development. The percentage of patients who had had Pap smear ranged from 0-12%. Questionnaires were returned by 221 patients; 56.3% had none or only primary education and 61.1% had a household income of RM1000 or less. Level of education and the household income were strongly associated ($p < 0.05$) with knowledge and having had a Pap test. The main reasons cited for not having had a Pap smear were "Never heard about it" (36.2%), "Shy" (10.4%), "Afraid to do it" (13.1%), "Think the test is not important" (8.1%) and "No encouragement from family" (4.5%). A large majority (95.9%) of the patients did not know the optimal interval. In conclusion, a large number of cervical cancer patients had not had a Pap smear within 3 years preceding cancer development and most had inadequate knowledge about this screening test.

Key Words: Cervical cancer - Pap smear - knowledge on cervical cancer screening - Malaysia

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Introduction

Cervical cancer is the second commonest cancer among women in Malaysia. In many developed countries where the screening programmes are effective, reductions in cancer incidence have been seen (Mahlck et al., 1994; Fouquet and Gage, 1996; Riza et al., 2000; Schenck and von Karsa, 2000; Moore and Tajima, 2004) while in Asia the incidence remains high, probably because of ineffective screening (Moore and Tajima, 2004; Patro and Nongkynrih, 2007). It is the most frequent cancer among women in India, Indonesia and Thailand and the second most frequent in Malaysia, the Philippines and Viet Nam. Since its introduction by George Papanicolaou about 50 years ago, Pap smear screening has led to a dramatic decrease in both the incidence and mortality rates of cervical cancer (Anderson, 2002). In a study in Europe, a 93.5% reduction in cancer incidence was found among women aged 35-64 years with an annual screening, 92.5% with biannual screening and 90.8% with 3-year screening (Dubois, 1996). In Taiwan, triennial screening with high compliance was found to be as effective as annual screening with low compliance, and more cost-effective (Koong et al., 2006). Thailand tried a 5-year screening

interval to improve compliance, but it was not effective (Sriamporn et al., 2006). A study among factory workers in Malaysia found that women who had had a Pap smear were over 30 years old, had been married and living with family or relatives (Chee et al., 2003). However, female physicians and their relatives were no better than the general populations to adherence to regular Pap smear screening intervals (Chen et al., 2007). The effectiveness of cervical cancer screening programmes differs widely in different populations. Andrea et al (2008) conducted an audit on cervical cancer cases in Sweden and noted that women who had not had a Pap smear within the recommended screening interval had a higher risk for cancer than women who had been screened (OR = 2.52, 95% CI = 2.19 to 2.91).

In Malaysia, opportunistic Pap smear screening started in the 1960s (Othman, 2002). Despite several national campaigns by the Ministry of Health and some non-governmental organizations, the cervical cancer incidence is not declining. The aim of this study was to determine the proportion of cervical cancer patients in Malaysia who have had a cervical [Pap] smear examination within 3 years of the development of the cancer and to determine their understanding about screening for this cancer.

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Materials and Methods

Pathologists, gynaecologists and oncologists who were known to authors and working at major hospitals in Malaysia were invited to take part in the study. Ethical approval for the study design was obtained from the Ministry of Health Research and Ethics Committee, and the study was registered with the National Medical Research Register. The study had two parts. First, pathology data were obtained from the pathology registry of each hospital on all histologically confirmed cervical cancer cases between 2000 and 2006. The records were scrutinized to avoid duplicate entry. The Pap smear history in the preceding 3 years was obtained from the patients' medical records.

In the second part of the study, survey data were obtained by giving structured questionnaire to cervical cancer patients attending gynaecology or oncology clinics between May 2007 and May 2008. The patients included were based on voluntary basis, regardless of the stage of disease, the kind of treatment received or the year in which the cancer was diagnosed. The survey was administered by the oncologists/gynaecologists attending the clinics of the participating hospitals. The term 'Urban' hospitals are those hospitals which are located in the cities which have attained 'City' status and 'less-urban' hospitals are those located in cities which are not. The precision was set at 0.02, based on single proportion formula; the minimum sample size required was 197. After adding estimated 10% drop-out, the total sample size required was 217. The data were analyzed with SPSS version 12.2. The level of significance was set at 0.05.

Results

Pathology data

Eight of 10 pathologists agreed to participate in data collection, at the Universiti Sains Malaysia Hospital

Table 1. The Demography of Cervical Cancer Patients Histologically Confirmed in 2000-2006

Hospitals	No.	Mean age (years)				Total
		M	C	I	O	
HKL	390	50	55	53	44	48
HSA	264	49	57	50	37	50
HRPZII	166	53	57	0	53	43
HTAA	160	50	51	60	42	61
HUSM	80	53	50	0	50	50
HPP	149	52	57	56	44	49
HSNZ	52	53	0	0	33	56
HI	152	54	58	59	55	52
Total	1413	52	55	56	45	51

M, Malays; C, Chinese; I, Indians; O, Others; HKL, Hospital Kuala Lumpur; HSA, Hospital Sultanah Aminah Johor Baru; HRPZ II, Hospital Raja Perempuan Zainab II; HTAA, Hospital Tengku Ampuan Afzan Kuantan; HUSM, Hospital Universiti Sains Malaysia; HPP, Hospital Pulau Pinang; HSNZ, Hospital Sultanah Nur Zahirah Kuala Trengganu; and HI, Hospital Ipoh

(HUSM), Raja Perempuan Zainab II Hospital (HRPZ II), Sultanah Nur Zahirah Hospital (HSNZ), Kuala Trengganu, Sultanah Aminah Hospital (HSA), Johor Baru, Kuala Lumpur Hospital (HKL), Ipoh Hospital (HI), Pulau Pinang Hospital (HPP) and Tengku Ampuan Afzan Hospital (HTAA), Kuantan. Gynaecologists and oncologists at three further hospitals (Tunku Ampuan Rahimah Klang Hospital (HTAR), Tengku Jaafar Hospital (HTJ) and Umum Sarawak Hospital (HUS)) participated in collecting survey data.

A total of 1413 cervical cancer cases were diagnosed in the eight hospitals in 2000-2006 (Figure 1). The mean age was 51 years (range, 41-61 years), and the mean ethnic distribution in relation to Malays was 1.7 for Chinese, 1.07 for Indians and 0.9 for others (Table 1). Squamous-cell carcinoma was the main diagnosis in all hospitals, and adenosquamous cell carcinoma the least frequent. The diagnosis made at each hospital is shown in Table 2.

Most of the cervical cancer patients had not had a Pap

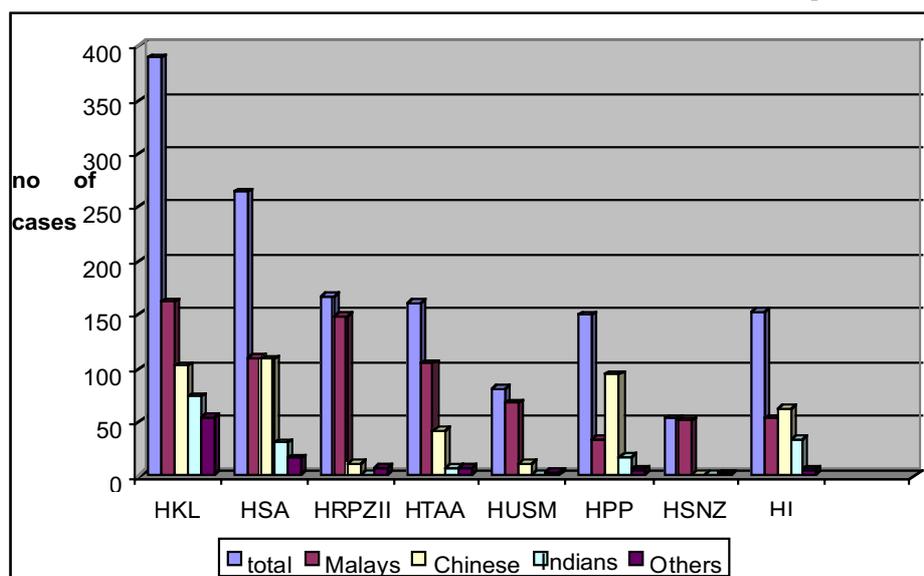


Figure 1. The Number of Cervical Cancer Cases Diagnosed According to Ethnic Groups in 8 Hospitals in Malaysia in Years 2000-2006 [n=1413]. Key: HKL, Hospital Kuala Lumpur; HSA, Hospital Sultanah Aminah Johor Baru; HRPZ II, Hospital Raja Perempuan Zainab II; HTAA, Hospital Tengku Ampuan Afzan Kuantan; HUSM, Hospital Universiti Sains Malaysia; HPP, Hospital Pulau Pinang; HSNZ, Hospital Sultanah Nur Zahirah Kuala Trengganu; and HI, Hospital Ipoh

Table 2. Histological Diagnoses of Cervical Cancer Made in 8 Hospitals, 2000-2006

Hospitals	No.	SCC (%)	AC (%)	AS (%)
HKL	390	285 (73.1)	84 (21.5)	21 (5.4)
HSA	264	226 (85.6)	32 (12.1)	6 (2.3)
HRPZII	166	117 (70.5)	43 (25.9)	6 (3.6)
HTAA	160	115 (71.9)	43 (26.9)	2 (1.3)
HUSM	80	53 (66.3)	24 (30.0)	3 (3.8)
HPP	149	118 (79.2)	27 (18.1)	4 (2.7)
HSNZ	52	37 (71.2)	12 (23.1)	3 (5.8)
HI	152	124 (81.6)	26 (17.1)	2 (1.3)
Total	1,413	1,075 (76.1)	248 (17.6)	47 (3.3)

SCC, squamous cell carcinoma; AC, adenocarcinoma; AS, adenosquamous carcinoma; HKL, Hospital Kuala Lumpur; HSA, Hospital Sultanah Aminah Johor Baru; HRPZ II, Hospital Raja Perempuan Zainab II; HTAA, Hospital Tengku Ampuan Afzan Kuantan; HUSM, Hospital Universiti Sains Malaysia; HPP, Hospital Pulau Pinang; HSNZ, Hospital Sultanah Nur Zahirah Kuala Trengganu; and HI, Hospital Ipoh

Table 3. Stages of Cervical Cancer at Diagnosis in 5 Hospitals*, 2000-2006 [n=181]

Hospitals	No.	Stage 1 (%)	2 (%)	3 (%)	4 (%)	Unknown
HTJ	39	9 (23.0)	16 (41.0)	9 (23.0)	1 (2.6)	4 (10.4)
HKL	28	4 (14.3)	8 (28.6)	2 (7.1)	1 (3.6)	13 (46.4)
HUS	89	22 (24.7)	22 (24.7)	25 (25.1)	-	20 (22.5)
HTAA	19	7 (36.8)	1 (5.3)	3 (15.8)	-	8 (42.1)
HPP	6	1 (16.7)	-	-	-	5 (83.3)

*only 5 out of 9 hospitals had complete data; HTJ, Hospital Tengku Jaafar Seremban; HKL, Hospital Kuala Lumpur; HUS, Hospital Umum Sarawak; HTAA, Hospital Tengku Ampuan Afzan Kuantan; HPP, Hospital Pulau Pinang

smear within the preceding 3 years. The 'best' performance was that of HRPZ II at 12.1%, with 5% at HUSM, 2.5% at HTAA, 2.1% at HKL, 2.0% at HPP, 1.5% at HAS and none at HSNZ or HI.

Survey data

The questionnaire was completed by 221 cervical cancer patients attending gynaecology or oncology clinics in nine hospitals. Their age distribution is shown in Figure 2. The age range was 44-55 years with the mean age of 50 years. There were slightly more Chinese patients than Malays, both numbering four times the Indian rate. 'Housewives' were the commonest occupation, this being reported by 75.1% of the patients. The stage of disease at diagnosis was known for 181/221 (81.9%) of the respondents. A significant number of cases were diagnosed

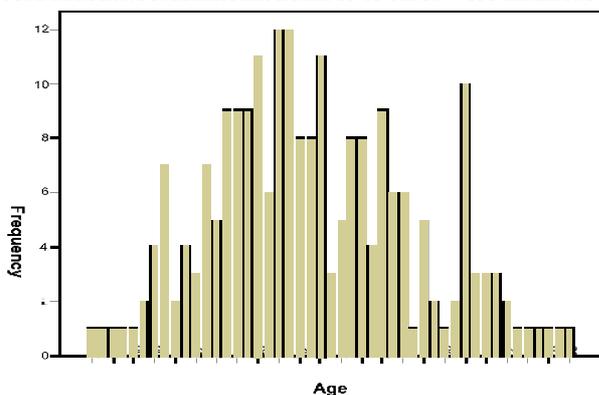


Figure 2. Age Distribution of Cervical Cancer Patients

Table 4. Education Levels of Cervical Cancer Patients and Pap Smear Knowledge, Pap Smear History and Future Pap Smear Plan

Education level	Yes	No	Total
a) Do you know about Pap smear screening test?			
None	13	37	50
Primary School	45	37	82
Lower Secondary School	35	8	43
Higher Secondary School	34	4	38
Tertiary	6	0	6
Total	133	86	218

Pearson's $\chi^2 = 51.21$ Pr < 0.001; Fisher's exact < 0.001

b) Have you taken Pap Smear screening test before?			
None	13	35	48
Primary School	40	43	83
Lower Secondary School	29	14	43
Higher Secondary School	26	12	38
Tertiary	5	1	6
Total	113	105	218

Pearson's $\chi^2 = 22.98$ Pr < 0.001; Fisher's exact < 0.001

c) Will you take Pap smear screening in future?			
None	5	33	38
Primary School	21	37	58
Lower Secondary School	15	11	26
Higher Secondary School	11	11	22
Tertiary	0	2	2
Total	52	94	146

Pearson's $\chi^2 = 16.98$ Pr = 0.002; Fisher's exact = 0.001

at an advanced stage (Table 3).

The youngest age at first sexual intercourse was 13 years. Most patients (56.1%) did not answer the question about the number of sexual partners; 35% of those who did respond had had a single partner, 6.3% had had two, 1.8% had had three and 0.5% had had four sexual partners.

Most of the patients (61.1%) had a household monthly income below RM1000 of which 24.0% less than RM500. Very few (4.7%) had more than RM3,000 with 2.3% had more than RM5000. 16.3% had 2 children or less and 74.2% had 5 or more children while 2.7% had more than 10 children. Two (0.9%) patients were single and 19.0% were widowed. A majority (81.0%) said that their current husband was the only person they had sexual intercourse with. Only 24.3% of the women were of pre-menopausal age.

About half of the patients in all hospitals had none (22.6%) or only primary school education (38.0%), 19.5% had lower secondary, 17.2% had higher secondary school education and 2.7% had tertiary level of education. There were strong associations between educational level and knowledge of Pap smear and need for undergoing the screening test (Pearson's chi 0.000, Fisher exact 0.000) (Table 4 a,b,c). An analysis of the association with income showed no significance. The association was clearer when income which was skewed (Figure 3) was reclassified into below and above RM1000 (Table 5).

Knowledge about Pap smear was not optimal. Although most (63.3%) of the cancer patients had heard about the Pap smear, from health personnel (39.4%), friends and relatives (10.0%) or the media (5.9%), most had not done the test. The deficit was high among patients

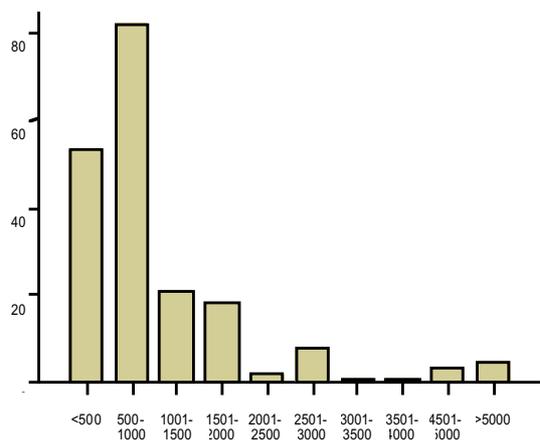


Figure 3. House/Family Earnings per Month (average) in RM of cervical cancer patients

Table 5. House/Family Earnings per Month and Pap Smear Knowledge

Earnings (RM/month)	Yes	No	Total
Do you know about Pap smear screening test?			
<1000	76	59	135
>1001	43	15	58
Total	119	74	193

Pearson's χ^2 Pr = 0.019; Fisher's exact = 0.017

at both a 'less urban' hospital (Kota Bharu) and a 'more urban' hospital (Pulau Pinang). Most of the patients surveyed did not know the optimal frequency of Pap smears.

There was no difference between Malays and non-Malays regarding educational level (Pearson's chi 0.129, Fisher exact 0.107), household income (Pearson's chi 0.762, Fisher exact 0.872), number of sexual partners (Pearson's chi 0.414, Fisher exact 0.427) and knowledge about the Pap smear screening test (Pearson's chi 0.083, Fisher exact 0.086). Large differences were found, however, between Malays and non-Malays in their responses to whether their current husband had been their first sexual partner (Pearson's chi 0.012, Fisher exact 0.004) and on encouraging other women to have a Pap smear (Pearson's chi 0.008, Fisher exact 0.002). The main reasons cited for not doing a Pap smear are; 'never heard about it' (36.2%), 'afraid to do it' (13.1%), 'feel shy' (10.4%). 'I think it is not important' (8.1%), 'no encouragement from husbands' (4.5%) and 'I am busy' (3.6%). Some responses implied that the responders' knowledge about Pap smears was erroneous; 'Pap smear is to detect sexually transmitted disease' (5.0%) and HIV (0.5%) and should be done 'only for married women' (68.8%), 'only for single women' (13.6%), 'only for menopausal women' (18.1%), 'only when there is cancer in the family' (31.7%), 'only when there is discharge' (29.9%) and 'only after delivery' (25.3%).

Discussion

We found that a large number of the women in whom cervical cancer was diagnosed in the eight hospitals in Malaysia between 2000-2006 had not had a Pap smear in the 3 years preceding the diagnosis of the cancer. This

finding is not surprising. In the 1996 National Health and Morbidity Survey, the coverage of women in Malaysia ever having had Pap smears was only 26% (www.pcdom.org.my 2004). Opportunistic Pap smear has been available in Malaysia since the 1960s, and Healthy Life-style Against Cancer programme was launched in 1995 by Ministry of Health, inviting women to come forward for screening (www.moh.gov.my/medical/HTA/cpg.htm, 2003). Opportunistic screening although it may have some benefits (Vutuc et al., 1999) does not contribute to a significant reduction in cancer compared to an organized programme. In Malaysia, we do not have enough cytotechnologists and cytopathologists, therefore such an effort may drain our limited resources (Othman et al., 1997).

Adherence to regular screening is a problem in many countries. In Singapore, only 42.0% reported for regular screening although the prevalence of screening was 62.4% (Lee et al., 2002). Home visits for education and invitations had only a nominal effect in increasing Pap smear coverage in Khon Kaen, Northeast Thailand (Chalapati and Chumworathayi, 2007). In Sarawak, Malaysia, late-stage cancer was reduced by half by an awareness-raising programme (Devi et al., 2007). In Keelung County, Taiwan, a 25% increase in the attendance rate for Pap smear screening was found after inclusion of other diseases, such as diabetes and hypertension, into the screening programme (Chen et al., 2004).

The educational level of patients plays an important role in adherence to screening (Gupta et al., 2004). In our study, about half of our patients had received none or only primary education. In a study in Singapore, the nature of the test itself was a significant barrier to having a Pap smear among women with fewer years of education (Seow et al., 2000). Knowledge about Pap smear screening in our study was not optimal. Although 63.3% said they knew about the Pap smear, a significant proportion did not act on that knowledge. Similar results are also seen in developed countries (Idestrom et al., 2002). Some clients thought that the Pap smear is a form of pre- or post-delivery examination or for detecting sexually transmitted diseases or HIV/AIDS. In Malaysia, women between the ages of 20 and 65 years who are sexually active are advised to undergo Pap smear screening at a 3-year interval (www.moh.gov.my/medical/HTA/cpg.htm, 2003). A large majority (95.9%) of our patients did not know this screening interval.

The peak age of women with cancer was slightly lower than that reported in the National Cancer Registry (55-60 years) (Lim, 2002; Lim et al., 2002). In our study, Chinese had a higher incidence than other ethnic groups, but the incidence among Malays was only slightly lower than that of Chinese, unlike in Brunei Darussalam, where the Malays have a much lower incidence of cancer than other groups (Affandi et al., 1993).

We observed a much higher percentage of adenocarcinomas than expected, similar to the finding of Cheah et al (1999). Effective screening has been shown to be beneficial for squamous cancers but not so for glandular cancers (Chung et al., 2006; Gunnell et al., 2007).

Low socioeconomic status has been shown to be associated with cancer (Gajalakshmi et al., 1996; Cheek et al., 1999; Schenck and von Karsa, 2000; Moore and Tajima, 2004). A majority (69.3%) of the cancer patients in our study had a family income less than 1000 RM. In a study on multi-ethnic groups by Seow and Lee, women who reported having had a smear were more likely to be below 45 years of age (prevalence ratio 1.47, 95% confidence interval 1.15 to 1.88), Chinese and of a higher socioeconomic status (1.68, 1.33 to 2.12) (Seow and Lee, 1994).

The Healthy Lifestyle Against cancer programme has been in place for more than 10 years. We need to reconsider the strategy for improving acceptance to screening, as a programme suitable for developed nations might not be applicable to a conservative society like Malaysia. We propose alternative strategies such as promoting awareness among medical practitioners rather than focusing only on the public. Men should be included in promotional campaigns. If the strategy is to be effective, all department agencies must be involved, and all employees (including men) of Government and the private sector should get reminders from their employers about the screening test. This should be linked to data in the National Registration Department, so that all women on reaching eligible age would be invited for screening at regular intervals.

The limitation of this study is on the number of the sample size returned by cancer patients. If the precision is set at 0.02 as was done for this study, the statistical inference is sound as the minimum number of samples needed (including 10% drop-out) was 217. However, if we were to set the study precision at 0.01, based on single proportion formula, the minimum number of required sample size is 790.

In conclusion, a large majority of the women in whom cervical cancer had been diagnosed in 8 major hospitals in Malaysia had not had a Pap smear within the preceding 3 years. Significant number is diagnosed at advanced stage. About half had no or only primary education, low income and were multiparous. Knowledge about cancer screening leaves much to be desired.

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