

Practice and Barriers towards Cervical Cancer Screening among University Staff at a Malaysian University

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Abstract

Objective: The objective of this study was to determine the practice and barriers towards the Pap smear test among Malaysian women.

Methodology: This is a cross-sectional survey of female university staff. Data was collected by a self-administered questionnaire from a total of 117 women. T-test and ANOVA test were conducted to determine if there was a significant difference between the study parameters.

Results: A total number of 117 female university staff participated in this study. The majority of them were Malays, single, and living in the city (92.3%, 58.1%, and 92.3%; respectively). Regarding lifestyle practices, the majority consumed vitamin and mineral supplements regularly, and exercised once a week, (55.6%, and 41%, respectively). As for their knowledge about cervical cancer, the majority have heard about the Pap smear test before (81.2%). Regarding the practice of Pap smear test, only 22.2% ever had a Pap smear test done. As for the barriers toward having a Pap smear test done, the most common barrier among study participants was lack of time (29.9%), followed by the excuse that the Pap smear test is a painful procedure (17.9%). Regarding the factors that influenced the practice of having a Pap smear test were marital status, occupation, regular vitamin and mineral supplements intake, daily fruits intake, regular medical check-up, educational and income level significantly influenced the practice ($p=0.001$, $p=0.002$, $p=0.034$, $p=0.001$, $p=0.001$, $p=0.024$, $p=0.001$; respectively).

Conclusion: The majority of participants in this study showed good knowledge about the Pap smear test. However, the practice of Pap smear test was very low due to the following barriers: lack of time and the perception of it being a painful procedure. Marital status, healthy lifestyle, educational and income levels significantly influenced the practice of having the Pap smear test done.

Keywords: Practice; Barriers; Pap smear; Malaysia

Introduction

Cervical cancer is the third most common cancer among women worldwide. Approximately more than half a million new cases are diagnosed yearly [1]. In Malaysia, cervical cancer is the second most common cancer in women [2]. The Second Report from the National Cancer Registry of cancer incidence in Malaysia showed that 12.9% of total female cancers was due to cervical cancer alone [3]. The national incidence rate for cervical cancer is not accurately known, but over the last ten years, there have been 2,000–3,000 admissions per year into government hospitals. Nearly 10.5% of deaths among women in government hospitals in 2002 were due to cervical cancer [4].

Several risk factors have been identified for the occurrence of cervical cancer such as the human papilloma virus (HPV), which is responsible for more than 90% of the cases of invasive cervical cancer worldwide [5-9], and being a sexually active female [10].

Cervical cancer can be prevented through regular Pap smear screening to identify pre-cancerous lesions before they progress into cervical cancer. For example, in the United States, there is a 90% decrease in deaths from cervical cancer due to the introduction of the Pap smear test [11]. In Australia, there was a gradual decrease of deaths from cervical cancer since the introduction of the National Cervical Cancer Screening Program in 1991 [12].

High Pap smear coverage of women at risk for cervical cancer is a key element in achieving a successful screening programme [13]. Since the introduction of the Pap test, the incidence of invasive cervical cancer in countries where the majority of women receive regular screening has decreased by more than 70% over the past 5 decades [14]. In Malaysia, the mortality from cervical cancer has declined in relative importance, although it is still the second most important cancer among women

[15,16]. In contrast, in countries which are still falling short of that objective, by the year 2010, over 90% of all their women will have had only one cervical Pap smear test within the preceding 3 years [17].

The policy of the Ministry of Health is to promote and to provide Pap smear screening to all women between the ages of 20–65 years [16]. The 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 given to those sexually active women who are more than 35 years old, have more than five children, have practiced contraception for more than five years or who are new acceptors of family planning services, and women diagnosed with sexually transmitted diseases. Women who attended postnatal and family planning services are also primary targets.

Little is known about the practice, barriers and factors associated with Pap smear test screening among professional women in Malaysia [18]. Therefore, understanding of the factors associated with under-utilization of the cervical cancer screening among professional women is important in order to increase overall cancer screening rates.

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Therefore, this study is aimed to determine the practice, barriers and associated factors toward the Pap smear test.

Methodology

A cross-sectional study was conducted on 117 female staff of the Management and Science University (MSU), located in Shah Alam, Malaysia. The university consists of several departments, including academic and administrative departments. Under the academic departments, there are several faculties namely; Faculty of Health and Life Sciences (FHLS), Faculty of Business Management and Professional Studies (FBMP), Faculty of Information Sciences and Engineering (FISE), International Medical School (IMS), Centre of Foundation Studies (CFS) and the School of Pharmacy (SOP). A total of 200 MSU female staffs were approached in this study and 117 agreed to participate. The questionnaire consisted of three sections: 1) Socio-demographic characteristics, 2) Their knowledge on the Pap smear test and examination, and 3) Their practice of having the Pap smear examination done. Before distributing the questionnaires to the respondents, a consent letter was given to each respondent asking for their permission. Once the respondents understood the purpose of survey, the questionnaire would then be handed to them. Choosing of the sample was done by using convenience sampling. Every department with female staff was visited by the researcher. The questionnaires were distributed to all female staff that was available in the office at that time. Those who were willing to cooperate would answer the questionnaire, while the remainder who would be either unwilling, thus declined to answer the questionnaire, or were absent during the visit to the office. Each department was visited several times so that the questionnaires could be distributed to the absentees. Distribution of the questionnaires was done during office hours (8:00 am-6:00 pm). The distribution of the questionnaires was done over 2½ months until the sample size had been achieved. The inclusion criteria were female MSU staff aged between 22 to 50 years old, participated voluntarily, can speak either Malay or English or both. The exclusion criteria were: Male staff, female staffs below the age of 22 years old or above the age of 50 and those who cannot speak Malay, English or both. Data was analyzed using SPSS version 13.

Results

A total number of 117 female university staff participated in this study. The majorities were Malays, non-academic staff, within normal weight, held a degree, single and lived in the city (92.3%, 66.7%, 52.1%, 53%, 58.1%, and 92.3%; respectively). Only a few of them reported a family history of cancer and/or cervical cancer (1.7%, 2.6%; respectively) (Table 1).

Regarding their lifestyle practices; the majority consumed vitamin and mineral supplements regularly, exercised once a week, did not have a daily fruits intake, and did not have regular annual medical check-ups (55.6%, 41%, 50.4%, 75.2%; respectively) (Table 2).

As for their knowledge about cervical cancer, the majority of study participants have heard about the Pap smear test before (81.2%). They mentioned that the purpose of the Pap smear test is to detect cervical cancer (78.6%), and that it is recommended to have it done once a year (40.2%). Four participants (3.4%) have had an HPV infection and have received their HPV vaccines. Regarding their knowledge about what the risk factors are of cervical cancer, the majority mentioned that early marriage is not a risk factor of cervical cancer (84.6%), multiple sexual partner is not a the risk factor (56.4%), smoking is not a risk factor (72.6%), and diet is not a risk factor (98.3%) of cervical cancer. However majority did mention that sexually transmitted diseases

Variable	Categories	Frequency	Percentage %
Race	Malay	108	92.3
	Chinese	2	1.7
	Indian	6	5.1
	Others	1	0.9
Marital status	Single	68	58.1
	Married	49	41.9
BMI	<18.5	17	14.5
	18.5-22.9	61	52.1
	23-27.4	27	23.1
	>27.4	12	10.3
Educational level	Diploma	25	21.4
	Degree	62	53.0
	Masters	30	25.6
Occupational	Academic	39	33.3
	Non-academic	78	66.7
Place of residence	City	108	92.3
	Rural	9	7.7
Family history of cancer	Yes	2	1.7
	No	115	98.3
Family history of cervical cancer	Yes	3	2.6
	No	114	97.4

Table 1: Socio-demographic characteristics of the study participants (n=117).

Variable	Categories	Frequency	Percentage %
Regular vitamin and mineral supplements intake	Yes	65	55.6
	No	52	44.4
Frequency of exercise	Never	27	23.1
	Once/week	48	41.0
	Twice/week	24	20.5
	Three times/week	6	5.1
	>3 times/week	12	10.3
Daily fruits intake	Yes	58	49.6
	No	59	50.4
Annual medical check-up	Yes	29	24.8
	No	88	75.2

Table 2: Lifestyle practices among study participants (n =117).

Variables	Categories	Frequency	Percentage %
Ever heard about pap smear test	Yes	95	81.2
	No	22	18.8
Purpose of Pap test	Detect cervical cancer	92	78.6
	Detect STDs	7	6
	I don't know	18	15.4
Pap smear standard recommendation	Once/year	47	40.2
	Once in 1-3 years	28	23.9
	Once in 5 years	9	7.7
	Once in life-time	3	2.6
	I don't know	30	25.6
Ever had HPV infection	Yes	4	3.4
	No	113	96.6
Early age of marriage is one of the risk factors of cervical cancer	Yes	18	15.4
	No	99	84.6
Multiple sex partners is one of the risk factors	Yes	51	43.6
	No	66	56.4
Smoking is one of the risk factors of cervical cancer	Yes	32	27.4
	No	85	72.6
Diet is one of the risk factors of cervical cancer	Yes	2	1.7
	No	115	98.3
STDs is one of the risk factors of cervical cancer	Yes	69	59
	No	48	41

Table 3: Knowledge about the risk factors of cervical cancer among study participants (n=117).

(STD) infection is one of the risk factors of cervical cancer (59%) (Table 3).

Regarding the practice of Pap smear test; only 22.2% of study participants ever had Pap smear test done and only 3.4% had the HPV

Variables	Categories	Frequency	Percentage %
Lack of time	Yes	35	29.9
	No	82	70.1
Ever had Pap smear test	Yes	26	22.2
	No	91	77.8
Ever had HPV vaccine	Yes	4	3.4
	No	113	96.6
Pap test is painful	Yes	21	17.9
	No	96	82.1
Pap test is unnecessary	Yes	17	14.5
	No	100	85.5
Embarrassed	Yes	12	10.3
	No	105	89.7
I don't care	Yes	6	5.1
	No	111	94.9
No female doctor	Yes	5	4.3
	No	112	95.7
No encouragement from husband/family/friends	Yes	4	3.4
	No	113	96.6
Do not know where to get the test	Yes	4	3.4
	No	113	96.6
Expensive	Yes	3	2.6
	No	114	97.4

Table 4: Practice and Barriers toward Pap smear test among study participants (n=117).

Variables	Categories	Frequency	Percentage %
To maintain good health	Yes	41	35
	No	76	65
To detect early cervical cancer	Yes	36	30.8
	No	81	69.2
Because of some signs and symptoms	Yes	13	11.1
	No	104	88.9
Check-up after delivery	Yes	13	11.1
	No	104	88.9
Doctor's advice	Yes	13	11.1
	No	104	88.9
Family History of cervical cancer	Yes	9	7.7
	No	108	92.3
Check-up prior delivery	Yes	5	4.3
	No	112	95.7
Wish to be pregnant	Yes	3	2.6
	No	114	97.4
Death of family/relatives/friends due to cervical cancer	Yes	2	1.7
	No	115	98.3
Influence from family/relatives/friends	Yes	1	0.9
	No	116	99.1

Table 5: Reasons for underwent Pap smear test among the study participants (n=117).

vaccine. As for the barriers towards Pap smear test; the most common barriers were 'lack of time' (29.9%), followed by 'the Pap smear test is painful' (17.9%), and 'Pap smear test is unnecessary' (14.5%) (Table 4).

On the other hand, the reasons for doing the Pap smear test among were 'to maintain good health' (35%), followed by 'early detection of cervical cancer' (30.8%), then 'doctor's advice' (11.1%). The lowest barrier reported among participants was the influence of family/relatives/friends (0.9%) (Table 5).

Regarding the factors that influenced the practice of Pap smear test; marital status, occupation, regular vitamin and mineral supplements intake, daily fruits intake, regular medical check-up, educational level and income significantly influenced the practice of Pap smear test (p=0.001, p=0.002, p=0.034, p=0.001, p=0.001, p=0.024, p=0.001; respectively) (Table 6). For the education, the differences exist between those with a degree as compared to having a master degree (p=0.029) using Sidak test.

Discussion

In this study, 82.9% of study participants have heard about the Pap smear test. Mehmetoglu et al. [19] reported that 90.7% of his study participants have not heard about the Pap smear test before. In previous studies, the percentages of women who have heard of Pap smear testing were reported to be between 29.7% and 76.9% [20,21]. These data are similar to those found in another study which evaluated the knowledge of the Papanicolaou examination among Argentinean women [22].

In this study of female university staff, only 22.2% of study participants ever had a Pap smear test done. We found in our previous study that only 6% of university students have had a Pap smear test [18]. This reflects a very low rate of Pap smear practice among Malaysian women. A similar finding was reported among female health professionals working in hospitals despite facilities for the test being available showing a similar negative attitude towards having a Pap smear test [23,24]. Findings by Aniehue and Aniehue [25] reported that the practice of cervical screening was low (5.2%). A similar finding was reported by Udigwe [26] who reported low levels of practicing Pap smear test (5.7%) among female health workers. Hoque and Hoque [27] reported that 9.8% of the participants had the Pap smear test done. Among Nigerian female university students, 8.3% of the participants had a Pap smear test before [24]. In Britain, a random sample of British women aged between 15-78 years, the prevalence of Pap testing was 80% [28]. Among Hispanic women in America, it was 87%–88% [29] and in Singapore women, it was 73% [30]. In a Jordanian study, it was low at 14.3% and only 7.5% had had a test within the previous 3 years [31]. A study in Taiwan showed that 56.4% of primary school teachers had a Pap test in 1991 [32]. Another study in Italy showed that 50% of primary and secondary female school teachers had undergone the Pap test regularly [33] and a study in Sweden it was reported that 2% of women with aged 25-59 years never had a Pap smear in 1996 [34]. The practice of Pap smear screening among Malaysian women was 31.2% [35]. The reasons for poor screening uptake include uneven distribution of medical facilities in the country [15] lack of knowledge about the availability of screening, and culturally-influenced reluctance to undergo cervical smear tests [36].

Variables	Mean ±SD	t	p-value	
Marital status	Single	1.99±0.12	7.79	0.001
	Married	1.49±0.50		
Occupation	Academic	1.64±0.48	2.56	0.022
	Non-academic	1.85±0.36		
Regular vitamin and mineral supplements intake	Yes	1.71±0.45	2.05	0.034
	No	1.87±0.34		
Family history of cervical cancer	Yes	1.33±0.57	1.88	0.30
	No	1.79±0.40		
Daily fruits intake	Yes	1.64±0.48	3.79	0.001
	No	1.92±0.28		
Annual medical check-up	Yes	1.48±0.50	4.78	0.001
	No	1.88±0.33		
Educational level	Diploma	1.84±0.37	3.83	0.024
	Degree	1.84±0.37		
	Master	1.60±0.49		

Table 6: Factors that influence the practice of Pap smear test among the study participants.

Regarding the barriers to cervical cancer screening; the most common barrier was 'not having the time' to do the Pap smear test. Another important barrier mentioned was the 'lack of knowledge about the Pap smear test', followed by the 'lack of information about screening sites'. Similar findings were reported in another study among Malaysian university students [18] by Abotchie and Shokar [37] and by Ayinde et al. [24] which stated that only 16% of their study participants had the knowledge of centers where the test could be done. A similar finding was reported by Aniebue and Aniebue [25] who reported that only 34% of its participants knew where to obtain a Pap smear. The places where screening is done could be easily addressed through simple information giving. Similar studies reported that logistical barriers such as 'having to take time off work' are another barrier towards cervical cancer screening [38-40].

Cost of the test was reported in this study as a barrier towards Pap smear test. Similarly, cost is found to be one of the important barriers reported by almost half of study participants [18]. Ayinde et al. [24] reported that 5.9% of its participants mentioned that cost is one of the barriers to cervical cancer screening. Similar finding was reported by Abotchie and Shokar [37]. The same in studies reported by Fernandez-Esquer et al. [41] and by [39,40,38]. Across the majority of studies, structural or access barriers to screening (e.g., cost, was the most often cited factors influencing screening behavior [42,43].

Embarrassment was another barrier to Pap smear screening practice among Jordanian women (25.9%). Similar findings were reported in other reports. [44,45] Several studies have indicated that a woman's decision to go for regular Pap smears is negatively influenced by fear of the test procedure, fear of the test results, and embarrassment [46-48]. A female practitioner may be more appropriate and acceptable among women from some cultural backgrounds as their attitudes are influenced by cultural and religious beliefs [49].

In this study, only 4.3 % prefer to have her Pap smear test done by female health care workers. A very high percentage of women in the Jordanian study by Amarin et al. [31] Showed that 62.8% of participants expressed the preference for having a female administer the test. Negative emotions, such as shame, embarrassment, and uncomfortableness with a male physician were also reported as having a significant effect on the perceived barriers to getting a Pap smear [50]. Similar Malaysian study showed that the majority of the participants agreed that the gender of the physician will affect the women's decision to do Pap smear test [51]. This is consistent with other research on Asian women, as many studies reported that they preferred female doctors to perform physical examination on intimate body parts and were highly embarrassed with male health providers [52,53]. Similar finding was reported by other researchers [54-56] reported that the anxiety of potentially being faced with a male sample taker was a significant problem. Another study from Hong Kong reported that many Hong Kong women prefer not to have their genital areas examined by a male doctor [57]. Another study from Mexico showed that a notable percentage of women agreed that being examined by a male physician would discourage them from getting a Pap test [58]. A study from Kuwait reported that about 79% of the respondents would prefer a female doctor to conduct the Pap smear test [59].

Clearly, there is a need to provide Pap smear services that are both acceptable and accessible in a way that addresses these cultural factors. This approach should include paying attention to unnecessary exposure and ensuring adequate coverage of the woman's body during examination. Where possible, screening services should be provided by female health workers. In this study, concern about

pain and discomfort associated with screening was reported as a perceived barrier. Similar findings were reported in a Jordanian study Amarin et al. [31]. 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 build a sense of trust. Similar finding reported that the discomfort of screening was one of the important barriers [38-40]. Similar studies reported that fear of pain and lack of personal hygiene would prevent women from attending Pap smear test screening [60,61]. Pain and embarrassment were reported by Lazzano-Ponce et al. [62] as a barrier. Wong et al. [36] reported that an expectation of pain and discomfort during the procedure was another barrier to screening among these women. Lack of awareness about the importance of cervical cancer screening, inadequate access to healthcare, and having to take time off work for screening [38-40] were cited as logistical barriers. Studies have also revealed that knowledge, attitudes and beliefs about the Pap smear test appeared to be related to actual participation in cervical cancer screening [63-65]. In fact, women's knowledge [66] and beliefs [41] of the Pap smear test were shown to be the strongest predictors of repeated screening.

In this study Pap smear practice was significantly related to marital status among university staff. Similar study found that Pap smear screening was significantly related to marital status [67]. Similar findings reported among the Norwegian female physicians, significant correlates of Pap smear screening were being married [68]. Similarly, study among the Korean-American women showed the strongest correlates of Pap smear with marital status [69].

Other than socio-demographic variables, Pap smear screening was found to be tightly bound to health service delivery variables, being significantly associated with having young children, being on the contraceptive pill or Intra-uterine device (IUD), and having had a medical examination done within last five years. Studies in other countries have also found a close association between Pap smear screening and health care utilization indicators [34,69,70].

Income was also significantly associated with Pap test. This positive association suggests that women with high economic status may be more likely to have more knowledge or access to sources of care regarding cancer screening services so that they are more motivated to undergo certain types of preventive medical care [71,72].

This study showed that regular medical check-ups significantly influenced the practice of Pap smear test. Similarly, study among the Korean-American women showed the strongest correlates of Pap smear practice and regular medical check-ups [69].

Other factors identified to negatively affect women's decision to get the test include: getting old, low income, low-level of education, lack of insurance coverage, extreme body weight values, disability, uncertain self-efficacy of the Pap smear result, negative feelings toward gynecological examination and distinct characteristics of the culture [71-82].

The present study was limited in that it did not seek to verify self-reported rates of screening with clinical or laboratory records. It also sampled only university employed women, and not women of the general population. It did not ask of women over 50 years old or

younger than 22 years old, as in this context, there are few women in that age group who are employed by the university.

Conclusions

The majority of participants had good knowledge about Pap smear test. However, the practice of Pap smear tests was very low due to the following barriers: Lack of time, cost of the test, lack of awareness of where it can be done, and the perception that it is a painful procedure. Marital status, occupation, regular vitamin and mineral supplements intake, daily fruits intake, regular medical check-up, educational level and income significantly influenced the practice of Pap smear test among the study participants.

Recommendations

Educate the university staff about the importance of Pap smear test. Healthy life style campaign should be held regularly at the universities to educate its students and staff. Information on where the Pap test can be obtained, how to access it, e.g. its hours of operation, need for making an appointment, how long it will take, etc. needs to be addressed. Preferably, have female medical personnel perform the Pap smear test. The practitioner needs to be culturally sensitive, and avoid unnecessary exposure and ensuring adequate coverage of the woman's body during the examination. The practitioner needs to be educated on how to address the patient's fear of pain as well as to be trained in relaxation techniques that can be used to help relax the patient and thus reduce the discomfort. The Malaysian government should make Pap smear test part of a subsidized routine care for women so that cost consideration does not become a factor. The Malaysian health care system needs to be a lot more proactive in offering and providing the Pap smear test, and as per the ministry's already established guidelines. Health practitioners, including nurses and doctors need to be more proactive in both asking their female clients if they have had their annual Pap smear test done, and if not, to proactively schedule them into their practices. The HPV vaccine should be made readily available. Should female patients present with the risk factors, to provide it at an affordable cost.

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