

## **Socio-Economic Determinants of Pap smear Screening among Married Women in Peninsular Malaysia**

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### **Abstract**

*This study is to identify the influences of socio-economic factors towards the practice of Pap smear screening among ever married women. Bivariate correlations and logistic regression analysis was applied to the data set containing 3,283 ever married women age 15-49 years, interviewed during the Fourth Malaysian Population and Family Survey, 2004. It was found that only half the women had undergone Pap smear screening prior three years of survey, in which Chinese had the highest percentage of Pap smear screening. The logistic statistical analysis also had identified several variables has important determinant has of Pap smear screening for ever married women. Finding from this study suggest a significant relationship between the cervical cancer awareness and knowledge, age and ethnicity for those women who practice Pap smear screening.*

**Keywords:** Pap smear, cervical cancer, ethnicity, ever married women, Peninsular Malaysia.

### **1. Introduction**

Cervical cancer forms in tissues of the cervix (the organ connecting the uterus and vagina). It is usually a slow-growing cancer that may not have symptoms but can be found with regular Pap tests (a procedure in which cells are scraped from the cervix and looked at under a microscope). It is the second most common cancer among women in developing countries, with 273,000 estimated deaths in 2002. Most cervical cancer cases (83%) occur in developing countries where they account for 15% of female cancers, compared to 3.6% in the developed regions (Gakidou, E., Nordhagen, S., & Obermeyer, Z., 2008)

In Malaysia, cervical cancer is the third most common cause of cancer death among women after breast cancer and colorectal cancer. Based on the National Cancer Registry, there was a total of 1,074 cases registered in 2006. The proportion of deaths due to cervical cancer among all forms of cancer deaths has been steadily increasing. The number are expected to increase 3,502 women, with 1,118 deaths in 2025. In 1998, cervical cancer was ranked 8<sup>th</sup> as cause of deaths due to cancers among medically certified death in Malaysia. By 2006, deaths due to cervical cancers was ranked 3<sup>rd</sup> with 12.2 deaths for every 100,000 women dying from any form of cancer (National Cancer Registry Malaysia, 2006).

The widespread introduction of the Papanicolaou test, or Pap smear test for screening for cervical cancer has been credited with dramatically reducing the incidence and mortality due to cervical cancer in developed countries (Canavan TP, Doshi NR, 2000). Pap smear screening every 3–5 years with appropriate follow-up can reduce cervical cancer incidence by up to 80 percent (M. Arbyn et al, 2010). Detecting this cancer at the early stage is of paramount importance. Early detection and prompt treatment improve the chances of survival. Unfortunately, delays in presentation are common (Lim G.C.C, 1998).

In Malaysia, Pap smear screening began in the late sixties, yet there has not been a decline in the incidence of cervical cancer. According to the National Cancer Society of Malaysia, all women who are or who have been sexually active between the age of 20 and 65 years old, are recommended to undergo Pap smear screening. If the first two consecutive Pap results are negative, screening every three years is recommended.

## **2. Data and Methods**

The data used for this study were obtained from the Fourth Malaysia Population and Family Survey (MPFS-4) which was conducted by the National Population and Family Development Board in 2004. A multi-stage stratified random sampling was adopted to collect data. A total of 3,693 ever married women aged 15 to 49 years old in Peninsular Malaysia were successfully interviewed. Ever married women who did not provide information on knowledge on and practice of Pap smear screening were excluded from the analysis. Only the three major ethnic groups in Peninsular Malaysia, namely Malay, Chinese, and Indian were included in this analysis. The study is based on a sample of 3,284 ever married women. Detail information on socio-economic variables, such as respondent's current age, ethnicity, education, marital status, occupation, contraceptive use, number of children, knowledge on and practice of Pap smear, knowledge of cervical cancer and practice of breast cancer screening were recorded in the structured questionnaire.

The method used includes a descriptive analysis of the demographic characteristics of respondents, bivariate correlations and logistic regression analyses. The dependent variable is the practice of Pap smear screening within the last 3 years. All women were asked, "Within the last three years, have you had Pap smear screening?". On the basis of the response to that question, Pap smear screening was coded '1' if a woman had had a Pap smear test in the past 3 years and '0' otherwise.

The independent variables are the socio-economic characteristics of women who had a Pap smear screening within the last three years. Socio-economic variables of interest were respondent's current age, ethnicity, stratum, educational level, marital status, contraceptive use status, type of contraception, number of children, knowledge of cervical cancer, knowledge of Pap smear and practice of breast cancer screening.

## **3. Findings**

Table 1 demonstrate frequency distribution of the ever-married women under study by their socio-demographic characteristics. The mean age of the respondents was 36.7 years. About 60 per cent of women were aged 35 years and above. Malay women made up 72 per cent, Chinese women 18 per cent, and Indian women 10 per cent. More than half (60 per cent) of the respondents lived in urban areas. Education level attainment among the respondents was found to be very high with more than 70 percent of the women having completed at least secondary level of education. About half the women were currently not working.

Slightly more than half (52.2 per cent) of the women had a Pap smear within the last 3 years. In terms of ethnic groups, Chinese and Malay women had a higher proportion who had taken a Pap smear compared to Indian women. There is a higher proportion of those who had had a screening among women aged 35 to 39 years old compared to the other age groups. The least likely to have had a Pap smear were women aged below 25 years old. This is probably because most women in this age category are newly weds. There was not much difference in the practice of Pap smear screening between women living in urban areas and those living in rural areas (see Table 2).

A higher level of education is related to a higher participation in Pap smear screening. The percentage of women who had a Pap smear screening within the last 3 years was higher among those with secondary and tertiary education than those who had no education or just primary education. Professional, and Clerical and Service workers had the highest proportion of women who practice Pap smear screening. Both categories of worker had 54.0 percent of women who had a Pap smear screening. Craft and Plant workers had the lowest proportion (44.7 per cent). There was no difference between those who were currently using contraception (59.0 per cent) and those who are not (59.2%). Among those who are using contraception, the practice of Pap smear screening is higher among women who use Intrauterine Device (IUD) which is 72.5 percent. Women who had two or more children were more likely to have had a Pap smear within the last 3 years. The practice of Pap smear screening was also higher among women who were aware about cervical cancer (53.3%) and among those with knowledge about Pap smear (53.6%). Women who have done both breast cancer screening at clinics/hospitals and Breast Self Examination (BSE) were also more likely to have had a Pap smear within the last three years (69.4%).

This section would present data analysis by Chi-square test to determine whether the independent variables involved are significantly correlated to the dependent variable which is whether or not women practice Pap smear screening. Table 3 shows that there are significant associations between all the independent variables and the dependent variable except for stratum. The result of logistic regression analysis is shown in Table 4. Two models were used for the analysis. Model 1 looks at the association between socio-demographic characteristics of married women and the practice of Pap smear screening. In Model 2, both the socio-demographic and socio-economic characteristics were included as independent variables.

In Model 1, all the variables that were included in the model; ethnicity, age, educational level, and occupation appear to be significantly associated with the practice of Pap smear screening. Chinese women were 1.362 times more likely to have had a Pap smear compared to Malay women while Indian women were 0.281 times less likely to have had the screening. Among age groups, all the other age groups are more likely to have had a Pap smear compared to the reference category, which is women aged 25 years old and below. The highest are those aged 35 to 39 years old which is 4.155 times more likely. The findings also show that women with secondary and tertiary education level are more likely to have had a Pap smear screening compared to those with no education or primary education. They were 2.283 times and 2.017 about two times more likely to have had the screening compared to those who had no education or primary education respectively. Women who were employed as craft and plant workers were 0.259 times less likely to have had a Pap smear screening than those currently not working. When all the socio-demographic and socio-economic variables are considered in Model 2, only ethnicity, age and occupation among socio-demographic variables were significant. The results from Model 2 show that the practice of Pap smear screening is higher among the Chinese (about 1.536 times more likely) than among Malay women. Those aged 35 to 39 years old remain the most likely (2.481 times more likely than women aged 25 years old and below) group to have had a Pap smear within the last three years. By occupation groups, only the Agricultural, Fishery and Elementary workers appeared to be significant with the odds ratio of 0.702.

As for the socio-economic variables, except for knowledge on cervical cancer, all other variables were significant. Women with a larger number of children have the highest odds ratio. They were 3.311 times more likely to have had a Pap smear compared to women who had no children. Those currently using contraception are 0.334 times less likely to have had a Pap smear within the last 3 years compared to those who were not currently using contraception. Among the types of contraception used, only tubal ligation, condom and other methods appeared to be significant. They are 0.579 times, 0.498 times and 0.346 times less likely to practice Pap smear screening compared to those who are using contraceptive pill respectively. As expected, women who has knowledge about Pap smear and women who have done both Breast Self Examination (BSE) and breast cancer screening test at the clinic/hospital is more likely to have had a Pap smear within the last three years. This indicates that knowledge and awareness about cancer is important before one decides to have a Pap smear.

#### **4. Conclusion**

Even though Pap smear has been introduced in Malaysia decades ago, cervical cancer is still a major health concern in our country. This indicates that the strategy that we have implemented, and the program that we have outlined may not have reached the targeted population. From this study, it can be concluded that ethnicity and age groups has great influence on the practice of Pap smear screening in Peninsular Malaysia. Besides that, to promote Pap smear, that is also a need to consider their number of children, contraception status, types of contraception used, knowledge about Pap smear and breast cancer screening status.

The cervical cancer needs to be paid more attention by everyone in the country and not only the women. It is becoming worst from day to day. We need to have awareness and knowledge on cervical cancer, ways to prevent it and how to overcome the disease if one has been detected to have it. Detecting this cancer at an early stage by Pap smear screening can help to prevent the cancer disease. These days, there are various clinics and hospitals which provides this cancer screening. Women especially, have to be encouraged to be aware of their health and any symptoms which could arise.

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**Table 1: Socio-Demographic Characteristics of women in Peninsular Malaysia**

Variable	Categories	Percentage
Ethnicity	• Malay	72.8
	• Chinese	17.7
	• Indian	9.5
Age	• Below 25	6.6
	• 25-29	14.5
	• 30-34	17.7
	• 35-39	20.7
	• 40-44	21.8
	• 45-49	18.7
Stratum	• Urban	59.7
	• Rural	40.3
Educational Level	• No Schooling	2.9
	• Primary	20.7
	• Secondary	60.2
	• Tertiary	16.3
Marital Status	• Currently Married	95.3
	• Widowed/Divorced/Separated	4.7
Occupation	• Currently Not Working	50.2
	• Professional	15.2
	• Clerical & Service Workers	17.7
	• Craft & Plant Workers	8.9
	• Agricultural, Fishery & Elementary Worker	8.0
Mean Age = 36.7 (Standard Deviation: 7.665)		

**Table 2: Percentage of Women who Practice Pap smear Screening by Socio-Demographic and Socio-Economic Characteristics**

Variable	Categories	Percentage
<b>Dependent Variable:</b>		
<b>Practice Pap Smear Screening</b>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> </ul>	52.2 47.8
<b>Independent Variables:</b>		
<b>Ethnicity</b>	<ul style="list-style-type: none"> <li>• Malay</li> <li>• Chinese</li> <li>• Indian</li> </ul>	51.7 59.8 41.7
<b>Age</b>	<ul style="list-style-type: none"> <li>• Below 25</li> <li>• 25-29</li> <li>• 30-34</li> <li>• 35-39</li> <li>• 40-44</li> <li>• 45-49</li> </ul>	26.4 48.4 55.2 59.0 55.0 50.5
<b>Stratum</b>	<ul style="list-style-type: none"> <li>• Urban</li> <li>• Rural</li> </ul>	52.2 52.1
<b>Educational Level</b>	<ul style="list-style-type: none"> <li>• No Schooling</li> <li>• Primary</li> <li>• Secondary</li> <li>• Tertiary</li> </ul>	35.1 47.3 54.4 53.3
<b>Marital Status</b>	<ul style="list-style-type: none"> <li>• Currently Married</li> <li>• Widowed/Divorced/Separated</li> </ul>	52.9 38.1
<b>Working Status</b>	<ul style="list-style-type: none"> <li>• Currently not working</li> <li>• Currently working</li> </ul>	53.4 50.8
<b>Type of Occupation</b>	<ul style="list-style-type: none"> <li>• Professional</li> <li>• Clerical &amp; Service Workers</li> <li>• Craft &amp; Plant Workers</li> <li>• Agricultural, Fishery &amp; Elementary Workers</li> </ul>	54.0 54.0 44.7 45.0
<b>Contraception Status</b>	<ul style="list-style-type: none"> <li>• Currently not using</li> <li>• Currently using</li> </ul>	59.2 59.0
<b>Types of Contraception</b>	<ul style="list-style-type: none"> <li>• Contraceptive Pill</li> <li>• Intrauterine Device (IUD)</li> <li>• Tubal Ligation</li> <li>• Condom</li> <li>• Withdrawal</li> <li>• Calendar-Rhythm</li> <li>• Others</li> </ul>	62.7 72.5 57.0 52.5 43.5 56.0 56.0
<b>Number of children</b>	<ul style="list-style-type: none"> <li>• 0</li> <li>• 1</li> <li>• 2</li> <li>• 3</li> <li>• 4</li> <li>• More than 4</li> </ul>	22.7 38.8 55.2 59.0 59.9 54.0
<b>Knowledge on Cervical Cancer</b>	<ul style="list-style-type: none"> <li>• No</li> <li>• Indicates whether a woman knows that cervical cancer is a second killer for women after breast cancer</li> <li>• Yes</li> </ul>	44.1 53.3
<b>Knowledge on Pap smear</b>	<ul style="list-style-type: none"> <li>• No</li> <li>• Indicates whether a woman knows that Pap smear can detect early stage cervical cancer</li> <li>• Yes</li> </ul>	31.7 53.6
<b>Breast Cancer Screening Status</b>	<ul style="list-style-type: none"> <li>• Never</li> <li>• Indicates whether a woman has done any screening for breast cancers</li> <li>• Breast Self Examination (BSE) only</li> <li>• Screening at Hospital or Clinic only</li> <li>• Have done both BSE and Screening test at Clinic/Hospital</li> </ul>	25.3 42.5 54.2 69.4

**Table 3: Chi-Square Test Result of Socio-Demographic and Socio-Economic Characteristics for Women who Practice Pap smears**

	Pearson Chi-Square	Sig
Ethnicity	28.076	0.000*
Age	78.405	0.000*
Stratum	0.003	0.959
Educational Level	18.776	0.000*
Marital Status	11.453	0.001*
Occupation	13.003	0.011*
Number of Children	142.111	0.000*
Contraception Status	103.786	0.000*
Types of Contraception	60.855	0.000*
Cervical Cancer Awareness	11.410	0.001*
Knowledge on Pap Smear	42.701	0.000*
Breast Cancer Screening Status	370.194	0.000*

Significance: \* $p < 0.05$

**Table 4: Logistic Regression Analysis of Socio-Demographic and Socio-Economic characteristics for Women who Practice Pap smear Screening in Peninsular Malaysia**

Covariates	Exp(B)	
	Model 1	Model 2
<b>Ethnicity</b>		
Malays (RC)	-	-
Chinese	1.362*	1.536*
Indians	0.719*	0.791
<b>Age</b>		
Below 25 (RC)	-	-
26-29	2.636*	2.011*
30-34	3.431*	2.145*
35-39	4.155*	2.481*
40-44	3.740*	2.275*
45-49	3.433*	2.012*
<b>Educational Level</b>		
No Schooling (RC)	-	-
Primary	1.577	1.229
Secondary	2.283*	1.621
Tertiary	2.017*	1.464
<b>Marital Status</b>		
Currently Married (RC)	-	-
Widowed/Divorced/Separated	.609*	1.014
<b>Occupation</b>		
Currently Not Working (RC)	-	-
Professional	0.958	0.967
Clerical & Service Workers	0.952	1.006
Craft & Plant Workers	0.741*	0.823
Agricultural, Fishery & Elementary Workers	0.775	0.702*
<b>Number of children</b>		
0 (RC)	-	-
1	-	1.725*
2	-	2.734*
3	-	2.985*
4	-	3.311*
More than 4	-	2.984*
<b>Contraception Status</b>		
Currently not using (RC)	-	-
Currently using	-	0.666*
<b>Types of Contraception</b>		
Contraceptive Pill (RC)	-	-
IUD	-	1.281
Tubal Ligation	-	0.421*
Condom	-	0.502*
Withdrawal	-	0.697
Calendar-Rhythm	-	0.438
Others	-	0.654*
Not using contraception	-	0.782
<b>Cervical Cancer Awareness</b>		
No(RC)	-	-
Yes	-	1.057
<b>Knowledge About Pap Smear</b>		
No(RC)	-	-
Yes	-	1.849*
<b>Breast Cancer Screening Status</b>		
Never (RC)	-	-
Breast Self Examination (BSE) only	-	1.861*
Screening at Hospital or Clinic only	-	3.155*
Has done both BSE and Screening test at Clinic/Hospital	-	5.708*
Constant	0.177	0.039

Significance: \* $p < 0.05$ .

RC: Reference category