KNOWLEDGE, ATTITUDE & PERCEPTION ON UTERINE CERVICAL CANCER AMONG FEMALE STUDENTS IN UNIVERSITY MALAYSIA SARAWAK (UNIMAR)

Kong Sing Ling (H) (20777)
Lai Siew Xuan (24779)
Mohd Rashid bin Moi Cheah (24134)
Muhammad Nor Hafie bin Arman (24291)

Eislerine 1 (2012/2013)
Faculty of Medicine & Health Sciences
Universiti Malaysia Sarawak
KNOWLEDGE, ATTITUDE AND PERCEPTION ON CERVICAL CANCER AMONG FEMALE STUDENTS IN UNIVERSITI MALAYSIA SARAWAK (UNIMAS)

Kong Sing Ling (L) (23777)
Lai Shu Xian (23790)
Mohd Ruduan Bin Mat Ghani (24131)
Muhammad Nur Hafiz bin Azman (24221)

Elective 1 (2010/2011)
Faculty of Medicine and Health Sciences
Universiti Malaysia Sarawak
KNOWLEDGE, ATTITUDE AND PERCEPTION ON CERVICAL CANCER AMONG FEMALE STUDENTS IN UNIVERSITI MALAYSIA SARAWAK (UNIMAS)

Kong Sing Ling (L) (23777)
Lai Shu Xian (23790)
Mohd Ruduan Bin Mat Ghani (24131)
Muhammad Nur Hafiz bin Azman (24221)

Prof. Dr. P.T. Thomas,
Department of Medicine

Submitted in part fulfilment for the Degree of Bachelor of Medicine in the Faculty of Medicine and Health Sciences University Malaysia Sarawak

April, 2011
JUDUL: Knowledge Attitude and Perception on Cervical Cancer Among Female Students in Unimas

TITLE

SESI PENGAJIAN/ ACADEMIC SESSION: 2010-2011

Saya / I 2009-23777 KONG SING LING (group leader)
(HURUF BESAR / CAPITAL LETTERS)

mengaku membenarkan *Tesis / Laporan Projek Pelajar Tahun Akhir ini disimpan di Pusat Khidmat Maklumat Akademik, Universiti Malaysia Sarawak dengan syarat-syarat kegunaan seperti berikut:
Hereby agree that this Thesis / Final Year Student Project Report shall be kept at the Centre for Academic Information Services, Universiti Malaysia Sarawak with following terms and conditions

1. Tesis / Laporan Projek Pelajar Tahun Akhir adalah hak milik Universiti Malaysia Sarawak
   The Thesis / Final Year Student Project Report is solely own by Universiti Malaysia Sarawak

2. Pusat Khidmat Maklumat Akademik, Universiti Malaysia Sarawak dibenarkan membuat salinan untuk rujukan pengajian sahaja
   The Centre for Academic Information Services is given full rights to make copies of for educational purpose only

3. Membuat pendigitan untuk membangunkan Pangkalan Data Kandungan Tempatan
   The Centre for Academic Information Services is given full rights to digitize in order to develop local content database

4. Pusat Khidmat Maklumat Akademik, Universiti Malaysia Sarawak dibenarkan membuat salinan Tesis / Laporan Projek Pelajar Tahun Akhir ini sebagai bahan pertukaran antara institusi pengajian tinggi
   The Centre for Academic Information Services is given full rights to make copies of this Thesis / Final Year Student Project Report as part of its exchange item program between Higher Learning Institutions

5. ** Sila tandakan (✓) / Please tick (✓)

   SULIT CONFIDENTIAL (mengandungi maklumat yang berdarjah keselamatan atau kepentingan seperti termaktub di dalam AKTA RAHSIA RASMI 1972)
   (Contains classified information bounded by the OFFICIAL SECRETS ACT 1972)

   TERHAD LIMITED (mengandungi maklumat Terhad yang telah ditentukan oleh organisasi /badan di mana penyelidikan dijalankan)
   (Contains classified information as dictated by the body or organization the research was conducted)

   TIDAK TERHAD UNLIMITED

(TANDATANGAN PENULIS) (AUTHOR'S SIGNATURE)

Alamat Tetap / Permanent Address

(TANDBATANG PENYELIA) (SUPERVISOR'S SIGNATURE)

Department of Basic Medical Sciences
Faculty of Medicine and Health Sciences
Universiti Malaysia Sarawak

Tarikh / Date : 1/8/2011

Catatan: * Tesis dimaksudkan sebagai tesis Ijazah Doktor Falsafah dan Sarjana, manakala Laporan Projek Pelajar Tahun Akhir adalah merujuk kepada Laporan Projek Pelajar Tahun Akhir Ijazah Sarjana Muda


** Jika Tesis / Laporan Projek Pelajar Tahun Akhir ini SULIT atau TERHAD, sila lampirkan surat daripada pihak berkusa /organisasi berkakaaan dengan menyatakan sekali sebab dan tempoh Tesis / Laporan Projek Pelajar Tahun Akhir perlu dikelaskan sebagai SULIT atau TERHAD / For Confidential or Limited work, please attach relevant document from the relevant authority.
ACKNOWLEDGEMENT

First and foremost, we would like to place on record our appreciation for Professor Dr. P. T. Thomas - our project supervisor – for his effort and guidance throughout our project, especially in editing our research documents. Prof. is a dedicated and committed supervisor.

We would like to thank Dr. Mizanur Rahman, who taught us how to do data analysis using SPSS. Without his help our analysis would not have come to a conclusion.

We are also grateful to Dr. Ong Puay Hoon, who gave us valuable advice on our questionnaire.

Special appreciation for our present elective research coordinator, Dr. Zunika binti Amit and the previous elective research coordinator, Prof. Dr. Mohd. Syafiq Abdullah, especially for arranging lectures and briefings on how to perform our research.

Thanks to Mr. Paul Cliff Simon Davis for teaching us on how to prepare the dissertations, posters and presentations.

We would like to thank our friends for answering our queries whenever we had them.

Finally, we are grateful indeed to the deans of all UNIMAS faculties for permitting us to collect our research data at the main campus in Kota Samarahan.
ABSTRACT

This cross-sectional study aimed to assess knowledge, attitude and perception on HPV (Human papillomavirus), cervical cancer and their associations with socio-demographic characteristics among UNIMAS female students. Data were collected using questionnaires and the samples were selected by convenience. Analysis is done using SPSS 17.0 software. Five hundred respondents consented to participate in this study but only 418 completed it. Most of them were undergraduate (n=400, 95.7%), Malay (n=217, 51.9%), and Muslim (n=220, 52.6%) students. 101 (24.2%) of them were medical students while the remaining (n=317, 76.8%) were non-medical students making the total of 418. Important findings in this study include poor knowledge on HPV and pap smear among female students in UNIMAS. Only 31 (7.4%) of the respondents have been vaccinated with HPV vaccine. Majority of the respondents (n=281, 95.9%) knew that HPV was transmitted sexually. There was no significant association between level of knowledge and races. However, Chinese respondents had a higher level of knowledge on HPV/ cervical cancer probably due to the higher incidence rate of cervical cancer among Chinese women. Most of the respondents (n=308, 73.7%) expressed their preference for a female doctor than a male doctor to perform pap smear on them. 316 or 80.6% of the respondents had poor knowledge.
ABSTRAK

Kajian seksyen-silang ini bertujuan untuk mengkaji pengetahuan, sikap dan persepsi atas HPV (Human papillomavirus)/ kanser serviks dan kaitannya dengan ciri-ciri sosiodemografi dalam kalangan penuntut perempuan UNIMAS. Data dikumpul dengan menggunakan kaedah soal-selidik dan SPSS 17.0 diguna untuk data analisis. Terdapat 500 orang responden bersetuju untuk menyertai studi ini tetapi hanya 418 responden boleh diambil kira. Kebanyakan penuntut merupakan siswazah (n=400, 95.7%), Melayu (n=217, 51.9%) dan Islam (n=220, 52.6%). 101 (24.2%) responden merupakan pelajar perubatan dan 317 (76.8%) ialah pelajar bukan perubatan. Pengetahuan responden dari segi HPV dan kanser serviks adalah rendah. Hanya 31 (7.4%) pernah mengambil vaksins HPV. Kebanyakan responden mengetahui HPV dijangkit melalui seks. Tiada kaitan yang ketara antara tahap pengetahuan dengan kumpulan etnik responden. Walau bagaimanapun, Cina mempunyai tahap pengetahuan tertinggi kerana Cina mempunyai kes kejadian tertinggi. Kebanyakan respondens mempunyai persepsi bahawa mereka lebih menyukai doktor perempuan berbanding dengan doktor lelaki untuk membuat pap smear. Kesimpulannya, pengetahuan responden tentang kanser serviks adalah rendah (n=316, 80.6%).
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>CONTENT</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acknowledgement</td>
<td>i</td>
</tr>
<tr>
<td>Abstract / Abstrak</td>
<td>ii</td>
</tr>
<tr>
<td>Table of Contents</td>
<td>iv</td>
</tr>
<tr>
<td>List of Tables</td>
<td>vii</td>
</tr>
<tr>
<td>CHAPTER 1: INTRODUCTION</td>
<td></td>
</tr>
<tr>
<td>1.1 Introduction</td>
<td>1</td>
</tr>
<tr>
<td>1.2 Rationale</td>
<td>2</td>
</tr>
<tr>
<td>1.3 Problem Statement</td>
<td>2</td>
</tr>
<tr>
<td>1.4 Aim and Objectives</td>
<td>3</td>
</tr>
<tr>
<td>CHAPTER 2: LITERATURE REVIEW</td>
<td></td>
</tr>
<tr>
<td>2.1 Epidemiology of Cervical Cancer</td>
<td>4</td>
</tr>
<tr>
<td>2.2 Causes of Cervical Cancer</td>
<td>5</td>
</tr>
<tr>
<td>2.3 Risk factors of Cervical Cancer</td>
<td></td>
</tr>
<tr>
<td>2.3.1 HPV</td>
<td>6</td>
</tr>
<tr>
<td>2.3.2 Sexual behaviour (number of sex partners and age at first sexual intercourse)</td>
<td>7</td>
</tr>
<tr>
<td>2.3.3 Parity</td>
<td>7</td>
</tr>
<tr>
<td>2.3.4 Smoking</td>
<td>7</td>
</tr>
<tr>
<td>2.3.5 Oral contraceptive pill (OCP)</td>
<td>8</td>
</tr>
<tr>
<td>2.4 HPV Vaccination</td>
<td>9</td>
</tr>
<tr>
<td>2.5 Screening for Cervical Cancer - Pap Smear</td>
<td>10</td>
</tr>
<tr>
<td>2.6 Barriers that prevent women from doing Pap smear and taking</td>
<td>10</td>
</tr>
</tbody>
</table>
CHAPTER 3: METHODOLOGY

3.1 Study design

3.2 Sampling method and sample size

3.3 Subject

3.3.1 Inclusion criteria

3.3.2 Exclusion criteria

3.4 Instrument

3.4.1 Background

3.4.2 Knowledge of cervical cancer

3.4.3 Attitudes and perceptions on cervical cancer

3.4.4 Source of information

3.5 Data collection method

3.6 Data analysis

CHAPTER 4: RESULT

4.1 Introduction

4.2 Socio-demographic characteristics

4.3 Knowledge on cervical cancer

4.4 Attitude and perception on cervical cancer

4.5 Sources of information

4.6 Relationship between demographic characteristics and the level of knowledge of cervical cancer
4.7 Relationship between demographic characteristics and the perception on cervical cancer

4.8 Relationship between involvement in sexual activity and practice of preventive measures

CHAPTER 5: DISCUSSION

5.1 Level of knowledge

5.2 Relationship between socio-demographic characteristics and level of knowledge

5.3 Attitudes and perceptions on cervical cancer

5.4 Relationship between the socio-demographic characteristics and the attitudes and perceptions on cervical cancer

5.5 Relationship between involvement in sexual activities and practice of preventive measures

5.6 Sources of information

5.7 Limitations of Study

CHAPTER 6: CONCLUSION & RECOMMENDATIONS

REFERENCES

APPENDIX A

APPENDIX B
<table>
<thead>
<tr>
<th>TABLE</th>
<th>TITLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1</td>
<td>Social Demographic Background</td>
<td>24</td>
</tr>
<tr>
<td>4.2</td>
<td>Other Relevant Information of Respondents</td>
<td>25</td>
</tr>
<tr>
<td>4.3</td>
<td>Distribution of the Participants According to Their Level of Knowledge</td>
<td>25</td>
</tr>
<tr>
<td>4.4</td>
<td>Mean Scores on the Level of Knowledge of Different Races</td>
<td>25</td>
</tr>
<tr>
<td>4.5</td>
<td>Knowledge on Cervical Cancer I</td>
<td>27</td>
</tr>
<tr>
<td>4.6</td>
<td>Distribution of Participants based on Their Knowledge on:</td>
<td>28</td>
</tr>
<tr>
<td>4.7</td>
<td>Knowledge on Cervical Cancer II</td>
<td>28</td>
</tr>
<tr>
<td>4.8</td>
<td>Attitude and Perception on Cervical Cancer</td>
<td>31</td>
</tr>
<tr>
<td>4.9</td>
<td>Sources of Information on HPV/Cervical Cancer</td>
<td>32</td>
</tr>
<tr>
<td>4.10</td>
<td>Sources of Information on HPV vaccination</td>
<td>32</td>
</tr>
<tr>
<td>4.11</td>
<td>The Relationship between Socio-demographic Characteristics and Level of Knowledge on Cervical Cancer</td>
<td>33</td>
</tr>
</tbody>
</table>
Chapter 1

INTRODUCTION

1.1 Introduction

What is cervical cancer? According to the American Cancer Society, cervix is the lowest part of the uterus. The cervix connects the body of uterus to the vagina. Ectocervix with squamous cells is the part closer to the vagina while endocervix with glandular cells is the part closer to the body of uterus. There is a transformation zone between them, where cervical cancer normally arises.

The Centre of Disease Control and Prevention (CDC) had reported that in 2006, 11,982 women in United States suffered from Cervical Cancer and 3976 of them died from the disease. According to the Malaysia National Cancer Registry 2005, a total of 4057 cases of cervical cancer had been reported from 2003 until 2005. The Age Standardized Incidence (ASR) of cervical cancer was 16.1 per 100,000 populations.

Cervical cancer is the second most common cancer in Malaysia after breast cancer, making it one of the main concerns of our health services recently. Our government has taken some actions in increasing the awareness of this disease among women, with the hope of reducing the incidence in our country. According to Nor Hayati Othman (2002), the incidence was approximately 11.6 per 100,000 population. She also mentioned that the incidence of cancers which involve infection in carcinogenesis, is higher in developing countries compared to developed countries. Examples are cervical cancer (due to HPV infection) and liver cancer (due to Hepatitis B and C).

Cervical cancer can be greatly prevented through a screening test called Pap smear. If the premalignant lesion (cervical intraepithelial neoplasia, CIN) is detected early, it can be
prevented from progressing to cancer. According to American Cancer Society, the death rate from cervical cancer in United States had reduced 65% between 1955 and 1992 due to the Pap smear screening test.

1.2 Rationale

Our research on assessment of knowledge, attitudes and perceptions on cervical cancer among female students in UNIMAS will help us to discover how well this educated group understands and knows the disease and where they normally acquire information on cervical cancer. This discovery will enable us to figure out a better and effective way to increase awareness and knowledge of the public towards cervical cancer and its main causative factor. This awareness can be further extended to the male population who contribute to the propagation of HPV.

1.3 Problem Statement

Stated in a study done by Nor Hayati Othman (2002), Malaysia introduced the Pap smear program in the early sixties and seventies with the aim to reduce the prevalence of the cancer. However, this aim was not achieved as the Pap smear coverage was not targeted at the high risk group – women of reproductive age and older.

The incidence rate of cervical cancer still remains high. This is partly due to the misconception of people who think that Pap smear is a diagnostic test to be performed when there are symptoms of cervical cancer. This deters them from taking the test for fear of being diagnosed with cervical cancer.

Misconceptions arise as people do not know well about the cancer and the purpose of doing the test. Virtually every woman is at risk of HPV infection starting from their very first
sexual intercourse and the risk remains throughout life irrespective of her age or lifestyle. Hence, it is important to instil the knowledge of cervical cancer and thus correct the misconceptions especially among the youths who are the assets of the country.

Moreover, many are unaware of the risk factors of contracting HPV infection, preventing them from taking appropriate preventive measures. If the public has increased awareness and a higher perception of the risk, they are more likely to take HPV vaccination as well as Pap smear to prevent the disease.

1.4 Aims and Objectives

This study is aimed at assessing the knowledge, attitudes and perceptions on cervical cancer among female students in Universiti Malaysia Sarawak (UNIMAS). The following are the specific objectives:

a) To find out the socio-demographic characteristics of UNIMAS female students.

b) To assess the knowledge towards cervical cancer among UNIMAS female students.

c) To assess the attitudes and perceptions towards cervical cancer among UNIMAS female students.

d) To associate the socio-demographic background with the knowledge, attitude and perception of the UNIMAS female students.

e) To identify the sources where the respondents obtain the information on cervical cancer.

f) To instil some basic knowledge on cervical cancer and *human papillomavirus* (HPV) through the questionnaire and pamphlet.
2.1 Epidemiology of Cervical Cancer

Cervical cancer comprises 12% of all cancers among women in the world (World Health Organization, 2002). It is the second most common cause of female cancer mortality in the world with 288,000 deaths yearly. The cervical cancer death is expected to rise to 320,000 in 2015 and 435,000 in 2030. Each year, about 510,000 cases of cervical cancer are reported and nearly 80% of them belong to developing countries: 68,000 in Africa, 77,000 in Latin America, and 245,000 in Asia (WHO, 2011). Cervical cancer was the second most common cancer among Malaysian females in 2002 while in other Asian countries, it ranked fourth among cancers in women.

According to the second report of cancer incidence by the National Cancer Registry of Malaysia in 2003, a total of 1557 females were reported with cervical cancer compared to 1715 cases in 2002. The incidence of cervical cancer was 16.5 per 100,000 populations in Peninsular Malaysia in 2003. It was also reported that the age-specific prevalence increased from 12.5% in the age group of 30-39 years to a peak of 28.2% in the age group of 40-49 years. The prevalence decreased progressively to 26.5%, 19.1%, and 11.6% in the age groups of 50-59 years, 60-69 years and 70 years and above respectively. The prevalence among females in the age group of 20-29 years was only 1.7%. It can be seen that about 50% of the cervical cancers in Malaysia were diagnosed between the ages of 40 to 59 while it was uncommon before the age of 30. From 2003-2005, cervical cancer was the second most common cancer among Indian females and third most common cancer among Chinese and
Malay females in Peninsular Malaysia. By ethnicity in 2003, Chinese was the ethnic group with highest incidence rate (56.4%), followed by Malay (32.8%) and Indian (10.8%).

2.2 Causes of Cervical Cancer

HPV infection is a sexually transmitted disease, in other words, it is transmitted through sexual contact. HPV causes infection at cutaneous and mucosal sites, sometimes leading to the development of different kinds of warts, including skin warts, plantar warts, flat warts, genital condylomata, and laryngeal papillomas. High risk types of HPV can cause changes in the cells covering the cervix that make them more likely to become cancerous with time. However, most women infected with these viruses do not develop cervical cancer. HPV is thought to infect cells at the base of the lining of the cervix, primarily in the zone where the cell types transform from one type to another in the cervix. This is a very dynamic area in the cervix, where the epithelium changes architecture on a periodic basis.

The ability of HPV to transform normal cells into cancer cells resides primarily in the viral proteins that exhibit a wide variety of activities and interact with numerous cellular proteins. The best characterized activity of these proteins is their interaction which leads to degradation of cellular proteins which normally suppress tumour cells. The HPV proteins function to restart DNA synthesis in cervical cells and therefore “prime” the host cells to produce viral DNA and ultimately more virus. Cervical cells transformed with HPV16 or HPV18 are capable of growing indefinitely, and gradually acquiring resistance to growth inhibitors that control the growth of normal cells.
2.3 Risk factors of Cervical Cancer

According to Kari Syrjanen and Stina Syrjanen, the risk factors leading to cervical cancer include *Human papillomavirus* (HPV) infection, sexual characteristics, reproductive factors, smoking, long-term use of oral contraceptives, socioeconomic status, education level and the presence of other sexually transmitted diseases.

2.3.1 HPV

HPV can be divided into “low-risk” types and “high-risk” types. “Low-risk” types rarely cause cancer but the “high-risk” types, as the name suggests, are more likely to lead to cervical cancer. Data from National Cancer Institute (2008) show that those “high-risk” types include types 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66, 68, and 73. The Centers for Disease Control and Prevention (2010) states that there are more than 40 types of HPV that can infect the genital area of both sexes. HPVs 16 and 18 are attributed to 70.1% of invasive cervical cancers worldwide (Castlelsagüé, Sanjose, Aguado, Louie, Bruni, Munoz, Diaz, Irwin, Gacic, Beauvais, Albero, Ferrer, Byrne, & Bosch, 2007).

According to World Health Organization (2010), around 99% of the cases are related to HPV infection. Castle, Solomon, Schiffman, and Wheeler (2005) found that those who were diagnosed with atypical squamous cells of undetermined significance (ASCUS) or mildly abnormal (low-grade squamous intraepithelial lesion (LSIL) with HPV 16 DNA positive were found to have higher risk to develop cervical intraepithelial neoplasia grade 3 (CIN3) compared to other oncologic HPV types. This finding indicates the importance of identifying the type of HPV infection at an early stage in order to enable early intervention before the epithelial changes proceed to advanced stage.
2.3.2 Sexual behaviour (number of sex partners and age at first sexual intercourse)

According to American Cancer Society (2010), women who have their first full-term pregnancy at an age younger than 17 years are almost 2 times more likely to get cervical cancer than those who get pregnant after they were 25 years or above. Early age at first sexual intercourse (EFSI) is believed to be associated with high risk sexual behaviour, for example, unprotected sex, multiple sex partners, and partners who have multiple sex partners (Louie, Sanjose, Diaz, Castellsagüé, Herrero, Meijer, Shah, Franceschi, Muñoz, & Bosch, 2009). Louie et al. (2009) also stated that this leads to high probability of early experience of first pregnancy. The mechanism of cervical carcinogenesis in these groups of women can be explained in terms of host’s immune response and hormonal influence on HPV infection. The biological immaturity of the cervix in the adolescent increases the susceptibility of the transformational zone of cervix epithelium, which is the main site of HPV infection, to metaplastic changes due to high hormonal changes, especially estrogen (Singer and Monaghan, 2002).

2.3.3 Parity

The number of live births is another risk factor for HPV infection. A study done by Muñoz, Franceschi, Bosetti, Moreno, Herrero, Smith, Keerti V Shah, Meijer, & Bosch (2002) found that compared with nulliparous women, those with one or two full term pregnancies have two to three times higher risk of getting squamous cell carcinoma (SCC), while those with seven or more full term pregnancies have approximately four times higher risk of getting SCC.

2.3.4 Smoking

According to American Cancer Society (2010), women who smoke are twice as likely to get cervical cancer compared to non-smokers. Duration of smoking and the number of
cigarettes smoked per day contributed to the increased risk of HPV infection (Zhao, Zhang, Wu, Zhang, Pan, Zhu, Zhang, Li, Gu, & Liu, 2009). There is evidence which shows that cessation of smoking is beneficial on reversing the early cervical abnormalities (CIN 1 or less). A study done by Szarewski, Jarvis, Sasieni, Anderson, Edwards, Steele, Guillebaud, & Cuzick (1996) showed that among the women who have minor grade lesion (CIN1 or less) and who were smokers, 82% among those who quit smoking for more than 6 months showed reduction of lesion size of at least 20% or 4mm$^2$ compared with non-quitters.

2.3.5 Oral contraceptive pill (OCP)

Pater, Mittal and Pater (1994) found that the risk of getting cervical cancer is higher among the long-term OCP users. The study had found that steroid stimulation can facilitate the integration of the virus into the host’s genome. A study done by Muñoz et al. (2002) on HPV-positive women found that those taking OCP for 5 to 9 years had three times higher risk of getting invasive cervical cancer, while those taking for more than 10 years had about four times higher risk. However, Syrjänen (2006) pointed out that usage of oral contraceptive pill is not an independent risk factor for this cancer, as the sexual behaviour of OC users and non-OC users are different since OC users are more likely to be sexually active than non-OC users. So, it is difficult to determine whether the risk of getting this cancer is purely due to relatively higher sexual activity among OC-users or both factors are contributory. A study done by Deacon, Evans, Yule, Desai, Binns, Taylor, & Peto (2000) also showed that there is no significant association between OC usage and either HPV infection or CIN3.
2.4 HPV Vaccination

The Health Ministry had provided annual HPV vaccination to an estimated 300,000 13-year-old girls in Malaysia in 2010. Health Minister Datuk Seri Liow Tiong Lai said RM 150 million was allocated annually so that the vaccine is available to the girls. HPV L1 protein is the major capsid protein used in the HPV vaccine. The second dose of the vaccine is taken one month after the first dose for Cervarix and two months after for Gardasil, while the third dose is taken at the sixth month.

According to a report from Centers of Disease Control and Prevention (2007), the vaccine is recommended for females aged 11-12 years but it can be administered as young as 9 years. For females aged 13-26 years who have not been vaccinated before, catch-up vaccination is recommended.

On June 8, 2006, the United States Food and Drug Administration (FDA) approved the use of Gardasil, a recombinant Human papillomavirus quadrivalent vaccine to prevent cervical lesion caused by HPV-16 and 18 and genital warts caused by HPV-6 and 11. Cervarix®, a recombinant Human papillomavirus bivalent vaccine was approved in October 2007 to prevent cervical lesions caused by HPV types 16 and 18. Gardasil is indicated to prevent premalignant genital lesions - cervical, vulval, and vaginal - and cervical cancer, and genital warts casually related to HPV types 6, 11, 16, and 18. According to Raset (2009), Gardasil confers 100% protection against HPV 16 and18 related cervical intraepithelial lesion (CIN) 2 and 3. According to Schwarz (2009), besides HPV-16 and HPV-18, Cervarix also offers protection against non-vaccine types mainly types 31, 33, and 45 which also allow for 11-16% additional protection against cervical cancer.
2.5 Screening for Cervical Cancer - Papanicolaou Smear

It has been demonstrated by research that the majority of cervical cancer cases occur among women with little or no screening history using the Pap test or among women without appropriate follow-up for abnormal Pap test results. The success of the Pap test, both conventional and newer technologies, has been due to the test’s sensitivity to detect cervical dysplasia for treatment. The best method for the detection and prevention of cervical cancer is to screen for precursor lesions by the Pap test and/or to screen for oncogenic HPV infection.

In the past, cervical cancer screening recommendations have been that all women who have been sexually active or who are 18 years of age and older should have annual Pap tests and pelvic exams. A new guideline shows that all women should begin cervical cancer screening about three years after becoming sexually active or by age 21, whichever comes first. Annual screening should occur with conventional Pap tests using the smear method or every two years using liquid-based cytology collection. Then, beginning at age 30, women with three normal Pap test results in a row may be screened every two to three years with traditional or liquid-based testing.

2.6 Barriers that Prevent Women from Doing Pap smear and Taking HPV vaccination

Data in Annual Reports of Ministry of Health (1980-1998) showed that “Pap smear coverage in Malaysia was a dismal figure of less than 2% in 1992, 3.5% in 1995 and 6.2% in 1996” (cited in Nor Hayati Othman, 2002, p. 15). It is conjectured that the government does not promote the screening test aggressively enough and that the public awareness of the benefits is inadequate.
A study done by Lopez and McMahan (2007) suggested that self-efficacy is a decisive factor which determines whether a female would insist her male partner to wear a condom during sexual intercourse. “Winer et al. (2006) found that women are less likely to contract HPV infection if their partner wears a condom” (cited in Lopez & McMahan, 2007, p.21). It is obvious that low self-efficacy in women is one of the factors why people are not taking preventive measure against HPV infection (sexually-transmitted infection).

Chang, Woo, Gorzalka and Brotto (2010) claimed that Chinese mothers feel uncomfortable and embarrassed to talk about Pap smear with their daughters, as the discussion involves mentioning sexual activity. As premarital sexual activity is prohibited in Chinese culture, Chinese mothers feel that it is unnecessary to discuss this with their daughters. This would be a reason why unmarried Chinese women usually don’t take Pap smear test.

According to the research done by Zimet, Weiss, Rosenthal, Good and Vichnin (2010), 54.9% won’t consider to take HPV vaccination as they are in a monogamous relationship. Some of them did not perceive the risk of contracting HPV infection due to sexual inactivity or low risk. In National Immunization Survey (NIS) 2007, large numbers mentioned that cost or insurance issue as barriers for taking the vaccination (cited in Zimet et al., 2010, pg. 4). About 21% mentioned lack of time and failure to make an appointment.

One third of their respondents also claimed that they did not have enough information about the HPV vaccine. One fourth claimed that they were worried about the side effects of the vaccine. On the other hand, some (14.6%) were concerned about the price of the vaccine. Undeniably, all these might form a barrier for people to take HPV vaccination.

Wong, Wong, Low, Khoo, & Shuib (2009) stated that many people had poor awareness of the indications and benefits of Pap smear. They thought that Pap smear is only
for those with symptoms of cervical cancer. They were not aware that the screening test could
detect the cancer in early stages. Furthermore, most married women were confident that their
spouses and themselves were not involved in promiscuous sexual behaviour; hence ruling out
any reason for contracting the HPV virus.

Quite a number of barriers have been discovered to prevent people from taking the
Pap smear as a screening test. The barriers are such as the lack of awareness about the
purpose of the screening test, difficulty to access to health care, feeling uncomfortable with
the screening test, afraid of being diagnosed with cancer and also need to spare some time to
take the test from health care providers (cited in Wong et al., 2009, p. 50). According to
Wong et al. (2009), many believed that death is not preventable if they have been diagnosed
with cancer. This is a barrier to approach the screening test that has been identified.

Ingledue, Cottrell and Bernard (2004), suggested that due to the lack of knowledge in
young women, misconceptions about their susceptibility to contract the virus and also
unawareness of their risk factor, they were prone to get HPV infection (cited in Lopez &
McMahan, 2007, p.14). These explain why especially young women did not go for Pap smear
or take vaccination. Zimet, Weiss, Rosenthal, Good and Vichnin (2010) had showed that out
of 185 respondents, 176 had never heard of a vaccine to prevent cervical cancer of HPV
infection.

Giuseppe, Abbate, Liguori, Albino and Angellillo (2008) found that some people
would not consider HPV vaccination as a preventive measure in the future because they had
the misperception or confusion that the vaccine is dangerous. This emphasizes the role of
physicians to rectify their misperception.

Another study by McFarlan (2003) revealed that women in Botswana had insufficient
knowledge of cancer screening, as a result forming a barrier to its utilization (cited in Bourne,

In an article written by Dr. Mohd Rushdan Md Noor (2008), he observed that lack of public awareness regarding cervical cancer has been a problem in Malaysia. This is why preventive program in Malaysia has not been a success. He said that in Malaysia, lack of resources, manpower and geographical barriers are main hindrance for us to carry out an effective screening program. Besides, we have no Pap smear registry, hence we cannot really figure out the actual Pap smear coverage.

2.7 Misconception on Cervical Cancer

A study by Ingledue, Cottrell and Bernard (2004) proved that there was no relationship between knowledge and perceived susceptibility on cervical cancer and HPV infection. However college women with better knowledge on cervical cancer are more likely to take Pap smear. This emphasizes on the role of educating the college women about the disease.

According to Ingledue, Cottrell and Bernard (2004) HPV infections, that cause cervical cancer, can be well prevented, it is just that females are lacking the knowledge about the disease and do not perceive of their risk and susceptibility of contracting the infection (cited in Lopez & McMahan, 2007, p.14). Thus they may not take any precautionary steps to prevent HPV infection such as practicing the safe sexual behaviour. This indicates that in the future, there will be more people contracting HPV infection.