



AMERICAN UNIVERSITY OF BEIRUT

PERCEPTIONS OF LEBANESE FEMALE UNIVERSITY  
STUDENTS ABOUT THE HUMAN PAPILLOMAVIRUS (HPV)  
VACCINE: A QUALITATIVE STUDY

by  
ALINE ADOUR YACOUBIAN

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submitted in partial fulfillment of the requirements  
for the degree of Master of Sciences in Population Health  
to the Department of Epidemiology and Population Health  
of the Faculty of Health Sciences  
at the American University of Beirut


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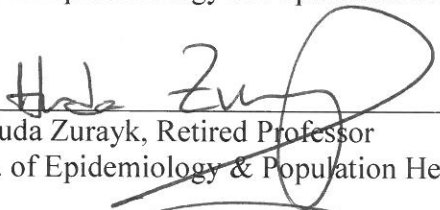
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God bless you all!

# AN ABSTRACT OF THE THESIS OF

Aline Adour Yacoubian for Master of Science  
Major: Population Health

Title: Perceptions of Lebanese Female University Students about the Human Papillomavirus (HPV) Vaccine: A Qualitative Study

The thesis explores perceptions about the human papillomavirus (HPV) vaccine among Lebanese female undergraduate and graduate students aged 18-26 years at the American University of Beirut. These students were from all faculties except for the Faculty of Health Sciences. The study aims to determine these students' knowledge and attitudes regarding HPV and the HPV vaccine.

The HPV vaccine was introduced worldwide and provides protection against several types of HPV. HPV infection can cause cervical, vaginal, vulvar, anal, penile and oropharyngeal cancers and genital warts. The Advisory Committee on Immunization Practices recommends vaccinating girls and boys from age 13 to 26 years in three doses prior to sexual debut. This thesis investigates the perceptions of HPV and the HPV vaccine among students using qualitative research methods. I conducted in-depth interviews with 35 women related to facilitators and barriers to vaccination, messages received from the surrounding environments and strategies for raising awareness.

HPV awareness is low and so is awareness about cervical cancer, other sexually transmitted infections (STIs) and the Pap smear. Very few participants had been vaccinated and those who were interested to receive vaccination focused on the cancer prevention part of the vaccine rather than HPV prevention. As for those who refused to receive the HPV vaccine, their concerns were about side effects, cost, fear of introducing a new substance in the body and perception of being low risk. Interviewees stated that educational institutions do not teach about HPV, but should include it in their education curriculum. Although this study shows that many physicians recommended vaccination, some physicians did not, especially family medicine physicians. Students were also hesitant to discuss health related issues such as vaccination with peers and physicians. The taboo surrounding sex was a prominent barrier in the society and there

was lack of communication between parents and students about sex that may act as a constraint to HPV vaccination. Some reported that they feared suggesting HPV vaccination to their parents out of concern their parents would assume they are sexually active. Although interviewees mentioned that they thought AUB students were involved in risky behaviors such as sex, they, however, perceived themselves to be at low risk and hence no need to vaccinate. They did not seem to understand the importance of receiving vaccination prior to sexual activity and that the vaccine is required for prevention of both HPV infection and cervical cancer.

This thesis offers insights about how students perceived HPV infection and the HPV vaccine. It also provides new understandings about the decision-making concerning HPV vaccine intentions in university students. This thesis contributes to filling a research gap on adolescent sexual health, particularly the HPV vaccine and helps identify gaps in knowledge, which could have important implications for future campaigns about cervical cancer prevention in Lebanon.

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# CHAPTER 1

## LITERATURE REVIEW

### 1.1. HPV

Cervical cancer is caused by persistent infection with a virus known as the human papillomavirus (HPV) (Cervical Cancer Action, 2014). HPV is the most common sexually transmitted infection (STI) globally with over 100 types of which at least 13 are cancer causing (World Health Organization [WHO], 2015). Bruni et al conducted meta-analysis based on 194 studies with a sample size of 1 million women and showed that global HPV prevalence among women with normal cytology is around 11-12% (as cited in Forman et al., 2012, p. F13). In the Extended Middle East and North Africa (EMENA) region, HPV prevalence in women with cervical cancer was around 50-100% (Seoud, 2012). Prevalence was 50-85% for the Middle East (Israel, Jordan, Lebanon, Palestine and Syria), 61-97.7% for North Africa (Algeria, Egypt, Libya, Morocco and Tunisia), 87% for the United Arab Emirates (UAE), and 57.9-98% for the Extended Middle East (Afghanistan, Iran, Pakistan and Turkey) (Seoud, 2012). As for HPV prevalence in preinvasive cervical lesions, the range was 32-66% for the Middle East, 50-100% for North Africa, 37-67% for the UAE, and 15.4-80% for the Extended Middle East (Seoud, 2012). When stratifying according to risk, women who were considered high risk (commercial sex workers, women with cervicitis and those who visit infertility or STI clinics), HPV prevalence was 9.5-87.5%. Among women who were considered low risk (general population and pregnant women), HPV prevalence was 0-25% (Seoud, 2012).

HPV can also cause vaginal, vulvar, anal, penile and oropharyngeal cancers (Petrosky et al., 2015). Around 17 500 women and 9300 men are affected by cancers caused by HPV per year in the United States (US) (Centers for Disease Control and Prevention [CDC], 2015). Most HPV

infections are asymptomatic and about 90% resolve on their own within two years (WHO, 2015). Elements that contribute to persistence of HPV infection remain unclear (American College of Obstetrics and Gynecologists, 2012). What seems to be the most important factor for persistence is HPV genotype (American College of Obstetrics and Gynecologists, 2012).

There are two strains of HPV (HPV 16 and HPV 18) that account for around 70% of cervical cancers (WHO, 2015). HPV 16 causes 55-60% of cervical cancers and represents the highest carcinogenic genotype, while HPV 18 is the second most carcinogenic genotype that accounts for 10-15% of cervical cancers (American College of Obstetrics and Gynecologists, 2012). In the EMENA region, HPV 16 and 18 were the most common in women with cervical cancer (Seoud, 2012). Although most infections clear on their own in women who have normal immune systems, cervical cancer may develop within 15-20 years in these women (WHO, 2015). Among women with a weakened immune system, cervical cancer can develop in 5-10 years (WHO, 2015). Other risk factors for cervical cancer include early debut in sexual activity, multiple sex partners, smoking and immune suppression (WHO, 2015). Thus, a reliable way of prevention is to stay in a loyal relationship with one sexual partner, use condoms and limit the number of sex partners (CDC, 2014). Condoms can reduce chances of getting HPV, but HPV can infect areas that are not covered by condoms (CDC, 2014). Hence, condoms may not give full protection (CDC, 2014). Also, penetrative sex is not required for the virus to be transmitted, since dry humping or skin-to-skin genital contact is a known mode of transmission (WHO, 2015).

Additionally, there are also non-oncogenic HPV types (HPV 6 and HPV 11) that can cause about 90% of anogenital warts and respiratory papillomatosis but may also cause conjunctival, nasal, oral and laryngeal warts (Petrosky et al., 2015). Genital warts appear as flat,

soft, moist, pink or flesh-colored lumps in the genital area (Workowski & Bolan, 2015). In the US, about one in 100 sexually active adults have genital warts at any given time (CDC, 2015). HPV types 16, 18, 31, 33 and 35 are also associated with anogenital warts but usually in conjunction with HPV 6 or 11 (Petrosky et al., 2015). A considerable proportion of anogenital warts and cancers is attributable to HPV in the US. There are over 34 788 new HPV associated cancers and about 355 000 new anogenital warts linked to HPV in the US (Workowski & Bolan, 2015). Moreover, HPV infection is most common in teenagers and women in their early 20s and prevalence tends to decrease in women aged 24-27 years in the US (American College of Obstetrics and Gynecologists, 2012). In developed countries, genital warts have similar epidemiological features to other STIs, with a peak incidence in younger generations, i.e. those aged 15-24 years (Forman et al., 2012). In the EMENA region, women with normal cytology had the following HPV types: HPV 6, 11, 16 and 18 in higher frequency (Seoud, 2012). Young women especially those aged 21 years and below can clear the infection because of their effective immune system in an average of eight months. The immune system also decreases the viral load to undetectable levels in the majority of women (85-90%) in an average of 8 to 24 months (American College of Obstetrics and Gynecologists, 2012).

## **1.2. Cervical cancer**

Cervical cancer is an important public health concern that kills more than 270,000 women across the globe annually with over 85% of these deaths occurring in the developing world (WHO, 2012). It is the fourth most common cause of death from cancer in women and accounts for 7.5% of all female cancer deaths (WHO, 2012). The estimated number of new cases of cervical cancer in the US were 12 900, while the estimated number of deaths were 4000 in

2015 (American Cancer Society, 2015). In Canada, there were 1500 estimated new cases and 380 estimated deaths in 2015 (Canadian Cancer Society, 2015). In the European region classified by the WHO, around 67 000 new cases of cervical cancer were estimated to have been diagnosed with mortality of around 28 000 cases in 2012 (WHO, 2012).

The latest data for Lebanon given by the National Cancer Registry is from 2008, with 106 new cases and no mention about mortality (Lebanese Ministry of Public Health, 2013a). The crude incidence rate was 5.2 per 100 000 in 2008 and the age standardized rate was 5.6 per 100 000 in 2008 (Lebanese Ministry of Public Health, 2013a). The newly diagnosed and histologically confirmed cervical cancer cases in Lebanon were between 1964-1966 (Abou-Daoud, 1967). The case-control study examined 140 cervical cancer cases and 140 controls and found that the disease was associated with marital status, early age of marriage and low socioeconomic status; the mean age of those with the disease was 51.7 years (Abou-Daoud, 1967).

### **1.3. Pap screening**

Cervical cancer can be detected by a simple test known as Papanikolaou's (Pap) smear or Pap test that can reveal pre-invasive and invasive disease in the early stages (American Cancer Society, 2015). The Pap smear is a simple technique in which a small sample of cells is collected from the cervix through a cotton swab and examined under a microscope (American Cancer Society, 2015). Most cervical cancer cases take place in women who have never been screened or have been inadequately screened (American Cancer Society, 2015). The American Cancer Society recommends that all sexually women begin cervical cancer testing (screening) at age 21 until 65, while those aged 21 to 29 years undergo screening every three years (American Cancer



Society, 2015). By this way, cervical cancer can be detected at an early stage when successful treatment is possible. Women who are under 21 years do not need to be screened even if they are sexually active (American College of Obstetrics and Gynecologists, 2012). The reasons include low incidence of cervical cancer in this age range, absence of data showing the effectiveness of screening in this age group and only about 0.1% of cervical cancer cases have been observed in women under the age 20, i.e. 1-2 cases per year per one million females in the age group 15-19 years (American College of Obstetrics and Gynecologists, 2012, p. 1226). Screening can also prevent most cervical cancers by detecting abnormal cervix cell changes (pre-cancers) that can be treated before developing into cervical cancer (American Cancer Society, 2015). Cervical cancer rates have fallen in the US because of screening (American College of Obstetrics and Gynecologists, 2012). Moreover, HPV tests can help detect HPV infections that are related to cervical cancer and are recommended to be used in a manner complementary to the Pap smear, but either as an additional screening test or when Pap smear has uncertain results. HPV tests can even help detect adenocarcinoma, which is a different type of cancer that often fails to be detected by the Pap smear (American College of Obstetrics and Gynecologists, 2012).

#### **1.4. HPV vaccines**

Since 2006, two vaccines have been developed to prevent HPV transmission and are sold under the names Gardasil and Cervarix (Cervical Cancer Action, 2014). Cervarix is bivalent that prevents HPV infection with HPV types 16 and 18. Gardasil is quadrivalent that prevents infection with HPV types 6, 11, 16 and 18 (Workowski & Bolan, 2015). Cervarix can only be given to females while Gardasil can be given to both females and males (Petrosky et al., 2015). There is another vaccine called 9-valent (9vHPV) introduced in February 2015 and also

recommended by the Advisory Committee on Immunization Practices (ACIP) (Petrosky et al., 2015). This vaccine prevents infection with HPV types 6, 11, 16, 18, 31, 33, 45, 52 and 58 and can be given to both sexes (Petrosky et al., 2015). All vaccines are recommended for routine vaccination for females and males aged 11 or 12 years and “ACIP also recommends vaccination for females aged 13 through 26 years and males aged 13 through 21 years not vaccinated previously.” (Petrosky et al., 2015). They should be given in three doses over a period of six months through intramuscular injection prior to sexual debut (Petrosky et al., 2015). The reason that they should be administered at such a young age is for the vaccine to function effectively before the child is exposed to HPV (CDC, 2015). In addition, these vaccines produce higher immune response in preteens compared to older teens and young men (CDC, 2015). Even if people have engaged in sexual activity, they should be vaccinated since they may not be exposed to any or all of the HPV types found in the vaccine (CDC, 2015). Moreover, the two vaccines have been licensed by the Food and Drug Administration (FDA) and recommended by the ACIP and the American College of Obstetricians and Gynecologists (American College of Obstetrics and Gynecologists, 2012). The vaccines are even recommended for homosexual and bisexual young men and men with compromised immune system (human immunodeficiency virus (HIV) patients) through the age of 26 years, if they were not vaccinated previously (CDC, 2015).

The recommendations set by the WHO to include HPV vaccination in the national immunization programs were based on the following factors that it is a public health priority to prevent HPV related infections and cervical cancer. In addition, it is feasible and practical to implement vaccine initiation programs and secure financing for vaccination by taking into account the cost-effectiveness of vaccination strategies in a certain country. Lastly, the WHO recommends that it is important to target adolescent females before engaging in sexual activity

(as cited in Cervical Cancer Action, 2014, p. 2). All these factors help facilitate the introduction of the HPV vaccine.

By the end of 2012, there were 45 countries across the globe that had introduced these vaccines, but mostly developed countries (WHO, 2015). The two vaccines are also approved and available in Lebanon but not mandated by the government or covered by any health insurance. Gardasil costs \$179 per dose while Cervarix costs \$71 per dose at the pharmacy of the American University of Beirut Medical Center (AUBMC) (checked on February 2, 2016) and can be purchased from any pharmacy or administered in a clinic by any of the following physicians; family medicine physicians, pediatricians and gynecologists. However, vaccination cannot replace Pap screening (Cervical Cancer Action, 2014) since vaccination provides limited cross protection against the remaining 30% of cervical cancer cases caused by HPV genotypes other than HPV 16 and 18 (American College of Obstetrics and Gynecologists, 2012). Thus, women who have been vaccinated for HPV should also continue to have their annual routine Pap screening in addition to taking protective measures (Friedman & Sheppard, 2007) after becoming sexually active. These vaccines have been proven to be safe and are currently under regulation for any adverse effects. The known problems are mild to moderate and they include pain, redness or swelling, mild and moderate fever (CDC, 2015).

Mortality from cervical cancer is still high in developing countries and the global burden falls heaviest on these countries because of the following reasons (WHO, 2015). There is limited screening and there are no well-organized screening programs (WHO, 2015), as well as no comprehensive approach to include the vaccine in the national public health strategy (WHO, 2015). The magnitude of the disease is also challenging to estimate in the EMENA region because of the absence of national registries in most of these countries (Seoud, 2013). This is

why women in the developing world are usually diagnosed at a late stage, which results in low survival and high mortality (Seoud, 2013). Since sex is regarded as a taboo and STIs are not discussed openly in the EMENA region, there is a tendency to overlook STIs since they are thought to be uncommon and this is why they are most likely to be under-reported and under-diagnosed (Seoud, 2012). Furthermore, many countries in this region suffer from political instability, which has affected and still negatively affects healthcare status and healthcare delivery (Seoud, 2013).

### **1.5. HPV and HPV vaccine awareness**

Numerous quantitative studies show that HPV awareness in developing countries is low and the vaccination rates are low as presented here. For example, a study in Saudi Arabia among 500 women aged 18-66 years (mean age = 42 years) (Sait, 2009). Another one among 1258 female students (mean age = 20 years) from health colleges in Riyadh, Saudi Arabia (Al-Shaikh, Almussaed, Fayed, Khan, Syed, Al-Tamimi, & Elmorshedy, 2014). A survey administered to 525 women aged 19-53 years (mean age = 32 years) in Turkey (Ilter et al., 2010). Another study among 500 women aged 20-50 years in Tehran, Iran (Farzaneh et al., 2011) and a survey of 334 female students aged 15-20 years (median age = 17 years) in Abu Dhabi, UAE (Al-Nuaimi et al., 2011).

In Lebanon, there was a cross-sectional study among 2255 women aged 18-65 years, wherein the majority had not heard of HPV. As for the 28.8% of women who had heard of it, only 11.8% were recommended by their doctor to be vaccinated (Sakr & Adib, 2011). A recent survey in Lebanon among 215 female students aged 18-46 years in AUB (mean age = 22 years and 78.9% from non-health related majors), 68.3% did not have any sexual exposure, 83.5%

were not vaccinated, but surprisingly 81.9% were aware about the connection between HPV and cervical cancer and 66.5% knew that HPV is a STI (Dany, Chidiac, & Nassar, 2015). The study found that 63.5% had heard about the vaccine. Their sources of information were personal physicians or gynecologists (they mentioned the word *personal* meaning a physician whom they knew and trusted), family or friends, university lectures, media and the internet. However, a great majority had poor awareness about details of the infection that there were three shots of the vaccine, if there was a cure for the infection, the ability of the Pap smear to rule out the infection, the age required for vaccination and that the cost of the vaccine was higher than 30\$ (Dany et al., 2015). Students from graduate programs or from health-related field had higher knowledge versus those from undergraduate programs or from non-health related field. A great number of students did not feel susceptible to HPV infection (59.8%) and most mentioned that they would recommend the vaccine to their friends (72%) and that all gynecologists should recommend the vaccine (76%) (Dany et al., 2015). Although vaccine uptake intention was low in the beginning, the intention increased after completing the survey (Dany et al., 2015). This was indicated in the second part of the survey, which assessed their attitudes and intent to receive vaccination that students were asked to complete after they received information about HPV and the vaccine.

Qualitative studies also show that HPV knowledge is low. Several studies mentioned that most participants had not heard of HPV infection or the vaccine (Friedman & Sheppard, 2007; Ports, Reddy, & Rameshbabu, 2013; Robbins, Bernard, McCaffery, & Brotherton, 2010; Remes et al., 2012; Wong, 2008). In a study among 314 males and females aged 25-45 years (mean age = 35 years) in the US, participants were surprised that they had never heard about the virus and many women voiced fear and shock when learning about the link between HPV and cervical cancer. All were willing to learn more about HPV by asking questions about signs and

symptoms, prevalence, mode of transmission detection and treatment (Friedman & Sheppard, 2007). Another study among 19 medically underserved women aged 18-26 years in the US, showed that many did not understand the nature of HPV that it is transmitted through genital contact (Head & Cohen, 2012). In in-depth interviews with 30 mothers aged 18-46 years in Malawi, sub-Saharan Africa, none of them knew about the HPV vaccine (Ports et al., 2013). In focus groups of 40 women (17 Malaysian, 13 Chinese and 10 Indian) aged 13-27 years in Malaysia, the majority had not heard of genital warts (Wong, 2008).

For a vaccine to be generally accepted in a community the public should be aware about this vaccine and information should be provided in a tailored manner taking into account several factors listed below. Awareness should be disseminated by well-trained healthcare professionals and the characteristics of the community should also be taken into account. Lebanon, like most other MENA (Middle East and North Africa) countries, is influenced by religious beliefs and tradition, wherein sexuality outside marriage is prohibited (El-Kak, 2013). The society observed in this region is conservative and has a relatively lower incidence of reported STIs, especially HIV when compared to other countries, but is believed to be likely to rise in the future (Seoud, 2013). Although these countries share similar religious and cultural conservatism, they are actually diverse and there may be different behavioral trends even within a single country (Seoud, 2012). However, these countries are recently experiencing a rising trend in premarital sexual behavior and outercourse, the latter is the most common sexual act because it is thought to be less risky (El-Kak, 2013) and young people are becoming more open and not very attached to sociocultural norms as before (Dany et al., 2015). Although it is difficult to detect the age of the initial engagement in sexual activity, it is reported to be between 16 and 19 years (Seoud, 2013).

Another element to take into consideration is that most single and unmarried women in developing countries do not regularly visit gynecologists (Cervical Cancer Action, 2014). This may be because they are either not sexually active yet or those who are sexually active may feel stigmatized to visit a gynecologist (especially unmarried women) or there is just no tendency to visit gynecologists without having a chief complaint. When students do not visit gynecologists, they may not be addressed about HPV and the vaccine. There are anecdotal reports that despite the fact that media and many campaigns may be promoting HPV vaccination, screening is still low in the MENA region. For instance, a national survey of 2255 women aged 18-65 years from across Lebanon was conducted; the weighted national prevalence use of the Pap smear among the eligible 1813 women was 35% and the majority had not even heard of HPV or the HPV vaccine (78.5%) (Sakr & Adib, 2011).

HPV knowledge and awareness are important to eliminate vaccine related concerns and fears (Friedman & Sheppard, 2007). This requires disseminating accurate and reliable health information about the vaccine in order for women (either parents of vaccine eligible girls or women who can make informed decisions about themselves) to be able to address their concerns and questions about HPV. When HPV vaccination was introduced in 2006 to the world, the healthcare community faced a challenge due to lack of clear guidance from national public health efforts on how to present the advantages of the vaccine (Friedman & Sheppard, 2007; Hopfer & Clippard, 2011). This is due to the fact that the topic is related to cancer and sexual health, two subjects that are considered taboo and are culturally sensitive (Hopfer & Clippard, 2011). Additionally, there have also been conflicting reports about fear of side effects that have actually led to confusion or even vaccine refusal (Friedman & Sheppard, 2007).

The experience from developed countries illustrates that public awareness about cervical cancer is a successful strategy for promoting acceptability and effectiveness of vaccination programs (Cervical Cancer Action, 2014). This means that educational programs implemented in communities prior to introducing the vaccine have helped increase vaccine acceptability. These have included not only parents or healthcare professionals or girls but also community or religious leaders and educational institutions (Cervical Cancer Action, 2014). To our knowledge, studies in the MENA region that have examined young women's or parents' attitudes toward the HPV vaccine are mainly quantitative (Farzaneh et al., 2011; Ilter et al., 2010; Sait, 2009) and there is one quantitative study conducted in Lebanon (Dany et al., 2015). Qualitative studies have been conducted in the developed world such as in the US (Friedman & Sheppard, 2007; Head & Cohen, 2012) and in Australia (Robbins et al., 2010) with college women and men and parents, but to our knowledge none has been carried out in the Arab region. This study therefore fills a critical gap.

### ***1.5.1. Favorable attitude towards the HPV vaccine***

Several studies show that there is a positive attitude towards the vaccine and the reasons are listed below. The majority of 36 college women in one university in the US considered the vaccine a worthwhile prevention method (Hopfer & Clippard, 2011). Their positive attitude was expressed either in their intention of being vaccinated or having already been vaccinated or making clear statements that the vaccine was commonsense (Hopfer & Clippard, 2011). A common reason for vaccination was the need to protect one's health (Friedman & Sheppard, 2007; Remes et al., 2012) against cervical cancer with little or no mention of HPV (Hopfer & Clippard, 2011). Many referred the vaccine to the cervical cancer vaccine rather than the HPV



vaccine (Hopfer & Clippard, 2011). In a survey conducted among 340 college students (202 women and 138 men) aged 18-32 years in the US, vaccine intent was significantly associated with ever having a STI, having a friend or relative infected with HPV, ever having sex and having more than five sex partners (Jones & Cook, 2008). As for the stratification of age in regards to acceptability of vaccination, women aged 18-19 years were more likely to accept the vaccine than those aged 22-32 years in a study among 202 women conducted in the US (Jones & Cook, 2008). A cross-sectional study was conducted in Saudi Arabia among 500 women and showed that 76.2% of participants were happy that the HPV vaccine was available and were willing to have their daughters vaccinated after receiving an educational pamphlet about HPV (Sait, 2009). In a survey of 500 women aged 20-50 years in Iran, 88% believed that people need to know about HPV, as part of a reproductive health education program and 90.4% would be vaccinated if recommended by their physicians (Farzaneh et al., 2011).

### ***1.5.2. Role of parents in encouraging or discouraging vaccination***

Parents can have a major impact on the vaccination of their children, which can be either positive or negative. In interviews with 35 students aged 19-23 years in Hong Kong, participants mentioned that their parents would question the vaccine and would not welcome the idea and find the vaccine unnecessary. They added that parents would express suspicion, discouragement, worry and shock since parents believed that their daughters were not sexually active and thus there was no need for such a vaccine (Siu, 2013). In interviews with 36 female students aged 18-26 years in the US, students also expressed fear of having to discuss vaccination or sex with their parents since their parents would assume that they were sexually active (Hopfer & Clippard, 2011). Many students were still financially dependent on their parents and thus would not be

vaccinated if their parents were against it (Hopfer & Clippard, 2011; Siu, 2013). However, positive parental messages as in paying for the vaccine and making the appointment were noted when a student mentioned that the impetus for her vaccination was her mother or that their siblings played a positive role in encouraging vaccination. These students even mentioned that they had open and frank conversations with their parents about sexual topics (Hopfer & Clippard, 2011). Similarly, 19 medically underserved women aged 18-26 years from rural areas in the US said that they would have not been vaccinated if it had not been enforced by their mothers since they were afraid of needles (Head & Cohen, 2012). However, other students added that they did not inform their mothers of their Pap smear appointment (Head & Cohen, 2012). In a qualitative study conducted in Tanzania with 169 participants including parents (aged 18-59 years), female students (aged 11-17 years), teachers (aged 19-51 years), healthcare personnel (aged 33-55 years) and religious leaders (aged 35-50 years), participants mentioned that when a student is willing to receive vaccination, he/she should receive it even if his/her parents are against the idea of vaccination (Remes et al., 2012).

There was an expression of uncertainty among parents as to why young girls should be vaccinated and why age was an important matter in this regard in interviews with 38 parents (37 females) in Australia (Robbins et al., 2010). For instance, some parents in a study among 314 males and females aged 25-45 years in the US thought that the vaccine should be administered to girls who were already involved in sexual activity (Friedman & Sheppard, 2007), while some had contrary attitudes that once a girl was sexually active she could no longer be vaccinated (Hopfer & Clippard, 2011; Robbins et al., 2010). There were widespread misconceptions in many studies, which may be due to concerns about promiscuity or denial of parents of sexual engagement of their children (Robbins et al., 2010). However, in interviews with 30 mothers aged 18-46 years

(mean age = 32 years) in Malawi, mothers indicated that the health of their children was the most important and they felt responsible for spreading information and recommending the vaccine in the community (Ports et al., 2013). In a study including 124 parents from both private clinics and public clinics aged 29-65 years mentioned that the reason their children were not vaccinated was that they were never recommended by their physicians (around 44%), but they would have accepted if they had been recommended by their physicians (Perkins et al., 2014). Parents seemed to favor vaccination when the vaccine was mentioned as a means to prevent cancer (Perkins et al., 2014).

### ***1.5.3. Sexual activity and youth in Middle East and North Africa***

Several factors influence the sexuality of the youth in this region. These factors include globalization, migration, political changes, religious characteristics, socioeconomic, educational and cultural norms (El-Kak, 2013). The population of youth aged 15-24 years in the MENA region is approximately 90 million making it the second youngest population in the world (Seoud, 2012). In Lebanon, about 745 000 are aged between 20-29 years excluding Palestinian camps from the total 4 million populations in 2013 (Ministry of Public Health, 2013b). It is important to tackle these elements in order to help understand the burden of STIs, since the youth is considered the “most vulnerable and contributes disproportionately the burden of STI in the region” (El-Kak, 2013, p. 48). Involvement in pre-marital sex and in high risk sexual behavior has also been noted in the region, even though the age of sexual debut remains unclear due to lack of studies (Seoud, 2012). The age has been noted to be 19.9 years in Algeria and Turkey, 20.3 years in Bahrain, 21 years in Pakistan and 23 years in Tunisia (Seoud, 2012). In a quantitative survey among 943 female and male students aged 18-30 years in Lebanon had

reported to engage in penetrative sex (among 1839 who provided a response (i.e. no, yes, rather not say) to all three questions inquiring about penetrative sexual activity). Males were slightly higher than females and mostly undergraduate students (74%) and from non-healthcare field and aged around 21 years (Ghandour, Mouhanna, Yasmine, & El Kak, 2014).

Media plays a role in shaping the lives of youth through transmitting modernization, globalization and social media (El-Kak, 2013). To our knowledge, this study is the first qualitative study aiming to explore the understanding about, barriers and facilitators towards the uptake of HPV vaccination among adolescent/adult undergraduate and graduate female students in Lebanon. It included semi-structured interviews with university undergraduate and graduate students aged 18-26 years from different faculties present in AUB.

#### ***1.5.4. Perception of low risk for HPV and issues regarding promiscuity and stigma***

In several studies, it was found that students perceived themselves at low risk due to the fact of not being sexually active and thus felt no need to be vaccinated (Di Giuseppe et al., 2008; Friedman & Sheppard, 2007; Head & Cohen, 2012; Siu, 2013; Wong, 2008). Another perception is that those who are in committed and monogamous relationships or are married are also at low risk (Hopfer & Clippard, 2011). The same was also seen in focus groups of 104 women and men (healthcare providers, parents and community leaders) aged 18-66 years in the US (Reiter, Oldach, Randle, & Katz, 2014). Those who perceived themselves at higher risk were the ones who showed intent to receive vaccination (Jones & Cook, 2008). Respondents from 19 medically underserved women aged 18-26 years believed that the vaccine was not needed until engagement in sexual activity (Head & Cohen, 2012), implying the prevalence of a common misconception of why to be vaccinated before exposure. The majority of 35 female students aged 19-23 years

interviewed in Hong Kong referred to the vaccine as a cervical cancer vaccine and mentioned that cervical cancer was considered a sex induced cancer that is diagnosed in women who are sexually active (Siu, 2013). Thus, they believed to be at low risk because they were not involved in any sexual activity (Perkins et al., 2014; Siu, 2013).

STI was classified as a major health concern when asked and also described as being associated with stigma. Stigma might act as a barrier to information seeking and vaccine acceptability (Friedman & Sheppard, 2007; Robbins et al., 2010; Wong, 2008). Female students in a study in the US mentioned that commercial sex workers actually get HPV because they are promiscuous, careless and not smart when it comes to sex (Hopfer & Clippard, 2011). Even those who were sexually active in the same study did not perceive themselves at risk because they believed that condoms were sufficient to protect themselves against HPV (Hopfer & Clippard, 2011). They added that parents also used stigmatizing messages stating that having one sex partner and staying in a loyal relationship with the same person does not necessitate people to receive vaccination since this is a sort of protection against the infection (Hopfer & Clippard, 2011). In focus groups conducted with 40 women (17 Malaysian, 13 Chinese and 10 Indian) aged 13-27 years in Malaysia from the general population, most participants mentioned that protection against STI is not related to sexual behavior, i.e. being vaccinated would not encourage promiscuity, because vaccination would not protect against the remaining STIs such as HIV for instance (Wong, 2008). The same was also noted in a survey among 525 women aged 19-53 years in Turkey wherein 95% did not believe that the vaccine had the potential to promote promiscuity (Ilter et al., 2010). In a qualitative study in Malaysia, only a few participants in focus groups with 40 women expressed concern about the perception of the community when a woman decides to be vaccinated then the public would perceive her as promiscuous (Wong, 2008).

### ***1.5.5. Credible sources of information for HPV***

The following sources for information about HPV were identified in several studies: physicians (Al-Nuaimi et al., 2011; Friedman & Sheppard, 2007; Ports et al., 2013; Wong, 2008) and the internet (Friedman & Sheppard, 2007). A great majority of 1249 female students from health colleges in Riyadh mentioned family medicine physicians as a reliable source for recommending vaccination, while only 5.1% mentioned the internet (Al-Shaikh et al., 2014). Participants in other studies even mentioned that they would accept any vaccine if recommended by their physicians because they trusted them and their decision would be facilitated if information was given by doctors (Hopfer & Clippard, 2011; Jones & Cook, 2008; Ports et al., 2013). Respondents in a qualitative study of 36 female students aged 18-26 years in the US stated that they had blind trust in medical experts and physicians' opinions had higher influence than family messages because physicians were more knowledgeable (Hopfer & Clippard, 2011). Some clinicians had refrained from discussing vaccination with students and they attributed it to cost and time constraints for students (Hopfer & Clippard, 2011). Students stated in many cases that healthcare providers did not bring up the topic of the HPV vaccine or if they did, they mentioned that the vaccine was unnecessary or it was too late for them to take it (Hopfer & Clippard, 2011).

Other studies mentioned schools and peer education programs (Reiter et al., 2014), as well as magazines and national advertisements on the television (Friedman & Sheppard, 2007). Participants added that information should be delivered in a serious, factual and simple language with some real-life examples. They mentioned that the topic was already scary and may attract more attention but may also contribute to unnecessary panic in the public (Friedman & Sheppard,

2007). Moreover, respondents in focus groups conducted in Malaysia among 40 women aged 13-27 years noted that the government should also promote the vaccine to the community (Ports et al., 2013; Remes et al., 2012) or intervene to make it more affordable (Wong, 2008). In the study conducted by Farzaneh et al., 60% of the 500 surveyed women aged 20-50 years expressed that they would trust the recommendations of the national health system if this system provided reassurance about the safety of the vaccine (Farzaneh et al., 2011).

#### ***1.5.6. Decision-making for HPV vaccination***

Many studies have addressed HPV vaccine decision-making. A qualitative study on 36 female students aged 18-26 years in the US mentioned that they usually did not discuss vaccines with their peers but only talked about the pain of injection (Hopfer & Clippard, 2011). They added that peers had little influence over their decision-making (Hopfer & Clippard, 2011). On the contrary, 19 women aged 18-26 years from rural areas in the US reported that close girlfriends could have a positive role wherein they would be encouraged to receive the vaccine if they learned that their friends were doing it too (Head & Cohen, 2012). As for decision-making for vaccination, most of the 500 women in a survey in Iran agreed that vaccination should be a personal choice but their lack of awareness made it challenging for them to accept a vaccine (Farzaneh et al., 2011). The same was also seen in another study in Malaysia wherein participants in focus groups conducted with 40 women aged 13-27 years (mean age = 21 years) had mixed feelings about making the vaccine mandatory; they preferred keeping it optional (Wong, 2008).

#### ***1.5.7. Barriers to HPV vaccination***

International studies report several barriers to the uptake of HPV vaccination. These include negative publicity about the vaccine safety and side effects (Farzaneh et al., 2011; Perkins et al., 2014; Reiter et al., 2014; Siu, 2013), lack of education of parents and women (Perkins et al., 2014), fears that the vaccine would encourage promiscuity, perception of not being at risk for HPV and vaccine cost (Friedman & Sheppard, 2007; Head & Cohen, 2012; Hopfer & Clippard, 2011; Reiter et al., 2014). Many mentioned that they would be vaccinated if the vaccine was covered by insurance (Reiter et al., 2014) or if it was offered for free (Ilter et al., 2010; Jones & Cook, 2008). Although a few women of the 36 female students aged 18-26 years in a study in the US were resistant to vaccination (19%), they reported that they were skeptical about the safety of the vaccine since it was a new vaccine. They attributed this argument to previous medications that were introduced and then pulled off the market due to unexpected side effects (Hopfer & Clippard, 2011). Some even added concerns about the vaccine affecting fertility of women, because the vaccine would weaken the cervix, while others assumed that condoms would act as protective measure against HPV (Hopfer & Clippard, 2011). Some were concerned about the short-term and long-term side effects of the vaccine and if it may lead to death (Reiter et al., 2014). There were also problems with accessibility and logistics of the vaccine, since many students did not know how to obtain the vaccine (Hopfer & Clippard, 2011; Reiter et al., 2014). Others added that following up on the vaccine to complete the three shots was problematic (Head & Cohen, 2012) since they had busy schedules (Head & Cohen, 2012; Reiter et al., 2014).

Obstacles that have been reported in the MENA region include financial restrictions and absence of data that document the burden of the disease, lack of relevant policy decision making or political support (Jumaan, Ghanem, Taher, Braikat, Al Awaidey, & Dbaibo, 2013). In Lebanon,



political turmoil disrupts the delivery of medical care and the lack of both official statistics and infrastructure constrains systematic screening (Seoud, 2013). Therefore, it is crucial to understand the perspectives around HPV and how they are interpreted and how they can help create more effective strategies to increase vaccine acceptability (Hopfer & Clippard, 2011). The environment includes parents, friends, schools and universities, colleagues, physicians, religion and social media. Although college women are independent and influenced by their peers, they may still rely on their parents when it comes to healthcare decisions, especially vaccination (Hopfer & Clippard, 2011). Additionally, a closer look at the community illustrates that the mean age at first marriage in Lebanon has increased to be the highest in the EMENA region (32 years for males and 28.8 years for females) (El-Kak, 2013). The percentage of women who used to marry at the age of 15-19 years has significantly decreased (Seoud, 2012). The civil turmoil has resulted in emigration implying higher involvement in sexual activity for those living abroad (El-Kak, 2013; Seoud, 2012).

Since most surveys conducted in the MENA region show that HPV knowledge and vaccination rates are low (Al-Nuaimi et al., 2011; Farzaneh et al., 2011; Sait, 2009), we presume that awareness may also be poor in Lebanon. Thus, this study presents a good opportunity to explore the gaps in knowledge about HPV and to identify facilitators and barriers based on a qualitative approach. The study will also help learn if there are similar or different barriers among students and how students think these barriers can be overcome. Moreover, students should visit family medicine physicians prior to matriculation for a physical checkup and required vaccinations (not HPV but measles, mumps and rubella) in AUB. If supposedly no communication was made to students about HPV, another concern arises that these students may never receive any information about HPV. Practice guidelines, for example, did not exist in the

US on how physicians should communicate to students about HPV vaccination and students do not usually visit physicians for preventive medical consultations (Hopfer & Clippard, 2011) and it is believed to be the same in Lebanon. In this study, we addressed the importance of messages that students receive from their surroundings about the virus and the HPV vaccine and how these messages shaped their attitude towards the vaccine. We also asked if they are in favor of the adoption of health education or sexuality in either schools and/or universities.

### **1.6. The Health Belief Model**

The Health Belief Model (HBM) is commonly used in health behavior research (Champion & Skinner, 2008). It helps interpret health-related behavior and direct such behavior interventions and explains why individuals decide to prevent and screen for health-related issues (Champion & Skinner, 2008). This model has been extensively used in anticipating and shaping cancer screening and HIV protective behaviors. It has also been used to explain why people choose to be or not to be vaccinated (Champion & Skinner, 2008). The HBM comprises primary constructs, which include perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action and self-efficacy (Champion & Skinner, 2008). The HBM is explained as follows: when people feel they are *susceptible* to a *severe health issue* that has a serious consequence and that there exists a course of action that would help decrease their susceptibility with *perceived benefits* outweighing *perceived risks*, and especially if there are *cues to action* which act as triggering events, then they would feel competent (*self-efficacy*) to take action to prevent this health issue (Champion & Skinner, 2008). This model is a conceptual tool and was used as a complementary analysis method for this study.

According to the HBM, college women would be more likely to abide by cervical cancer screening through uptake of HPV vaccination (even if they were not sexually active) if they felt susceptible to HPV infection and cervical cancer, considered HPV a serious infection and cervical cancer a severe and threatening disease, perceived the benefits of vaccination to be greater than the vaccination barriers, had higher self-efficacy for vaccination and received cues to action such as motivating factors that would help facilitate their decision-making process towards vaccination uptake.

## CHAPTER 2

### METHODOLOGY

#### **2.1. Justification of methods**

As mentioned previously, numerous quantitative studies have already been conducted in the Middle East and Lebanon (Al-Nuaimi et al., 2011; Al-Shaikh et al., 2014; Dany et al., 2015; Farzaneh et al., 2011; Ilter et al., 2010). Research is necessary to explore the messages that college women receive about the HPV vaccine from their surrounding environment involving parents, friends, colleagues, schools, university, physicians, religion and social media and how these messages help shape their decision towards vaccination (Hopfer & Clippard, 2011). What students expect people in their environment to inform them about STIs specifically HPV is necessary to explore since it leads them to a certain direction in relation to decision-making for vaccination uptake. Does this external environment help them form favorable attitudes or does it act as a barrier? If it represents a barrier, how can they combat it?

In-depth interviews were chosen since they are concerned with exploring participants' cultural background and "social worlds through personal accounts and narratives" in great flexibility (Ritchie & Lewis, 2007). Interviews help explore all the elements that respondents discuss including their perceptions, opinions and feelings. (Ritchie & Lewis, 2007). They are effective in providing a human standpoint to research concerns, wherein interviewees can express themselves in their own language and share their perspectives in regards to the research topic (Ritchie & Lewis, 2007).

Qualitative studies can help understand people's perspectives towards a certain topic. A decision was made to conduct qualitative study since it offers profound understanding of the

participants' vision of how people respond to a research subject (Ritchie & Lewis, 2007). This approach provides "intensive and extended data collection" wherein respondents share their individual experiences, opinions and perceptions while addressing sensitive topics that people may not feel comfortable in discussing in focus groups (Ritchie & Lewis, 2007). In-depth interviews help capture, illustrate and interpret the social worlds of participants (Ritchie & Lewis, 2007).

The choice to conduct in-depth interviews was made in order to explore students' perceptions of STIs in regards to the HPV infection, the vaccine, and sexuality education. It is important to gather reflections on decision-making for vaccination by taking into account the messages that these students receive from external factors and learn about the facilitators and barriers for vaccination. Since persons are accountable for their own health decisions and behaviors, it is essential to discover facilitators and barriers at several levels before instigating a certain program (Ports et al., 2013). Additionally, in-depth interviews are also a "useful framework for understanding the meanings that college women ascribe to the HPV vaccine messages they receive in daughter-parent as well as peer and healthcare provider communication." (Hopfer & Clippard, 2011, p. 263).

## **2.2. Study population**

The study population included graduate and undergraduate female AUB students whether or not they have heard about HPV and whether or not they have had the vaccine. The proposed age range of participants recruited was close to the suggested age limit for the vaccination. Students under the age of 18 years were excluded since in this case their parents' consent was required and since our sample did not target parents and this is why I avoided this age group.

Students aged 27 years and above were also excluded as it is not the age of interest for this study and the organizations have emphasized the age limit of 26 and below for vaccination (WHO, 2015).

As for determining the target population when discussing strategies for increasing HPV vaccination in the developing world, girls have been noted to be the most effective population from a public health perspective (Cervical Cancer Action, 2014). There is little information about the messages that college women obtain in regards to HPV vaccination, even though they are subject to (not necessarily engage in) risky behaviors including sex during their educational years (Hopfer & Clippard, 2011). Therefore targeting women is likely to be preferable since women may be more interested than men may. In addition, public health interventions have mostly centered on vaccinating pre-adolescent girls (Hopfer & Clippard, 2011). This is why it is important to understand how college women from this region think about these behaviors (Head & Cohen, 2012, p. 478). It is important to address these women, because “if prevention researchers are to develop informative HPV vaccine campaigns, the decision processes of the intended audience in this case college women need to be understood.” (Hopfer & Clippard, 2011, p. 264).

Many studies previously mentioned have been conducted with parents (Perkins et al., 2014; Remes et al., 2012). It is important to target college women because they will enter or have already entered adulthood; they will or have become independent and about to form their identity (Hopfer & Clippard, 2011). Mothers may remain the primary decision-makers in regards to their children’s healthcare (Perkins et al., 2014), but I believe at this age (18 and above), college women may not be fully dependent on their mothers’ decisions. They may consult them for opinion, but college women may make the final choice, because they have higher autonomy and

independence in decision-making (Siu, 2013). However, questions will be addressed to these women in order to explore the messages they receive from their parents, because despite increasing independence during developing adulthood, college women might still rely greatly on family messages (Hopfer & Clippard, 2011, p. 264).

### **2.3. Sampling and recruitment of participants**

Convenience sampling was utilized given the difficulty of having a purposive sample of female students. It was not practical to conduct purposive sampling since it was challenging to find students who were vaccinated versus who were not or students who favored vaccination versus those who were against it, even though it would have been better to group vaccinated versus non-vaccinated students for analysis purposes. My sample included only girls, and their age range is a bit large (18 until 26 years). It was not feasible to select participants based on religion or cultural background. Convenience sampling is also widely used in qualitative studies (Bryman, 2012).

First, fliers were posted on the bulletin boards on the campus with brief information about the study and my telephone number for those interested to participate in the study to call and inquire about the details of participation. This method, however, did not yield any participants. I believe that the reason may be lack of interest of students to read the bulletin board or maybe the fliers were not that attractive even though they were colored with brief information. This is why I relied on another method as explained below.

I performed direct approach for recruitment on the campus. I approached female students and gave them brief information about the study along with the flier and asked if they were willing to participate (they could take time to decide and contact me later if interested to

participate). This helped reach students who did not regularly check the bulletin board of the campus. This method was more efficient and I was able to find participants. Another way of finding more students was to ask participants to check with their friends if they were interested to participate and then to contact me. This method was even more efficient and resulted in more participants. A total number of 35 female students were interviewed. This sample size did help reach data saturation and I ended up having rich data to analyze.

#### **2.4. Study duration**

The first 16 interviews were conducted from June 2, 2015 until August 6, 2015. I was unable to find a high number of students since the spring semester ended by late May and thus all students were occupied with their final exams by the time Institutional Review Board (IRB) approval was granted in the end of April. This is why I had to keep my interviews for June and onwards. I stopped from August 7 to September 13, 2015, because in the summer session, most students do not take courses and hence I was unable to find students in the campus. I resumed in September when the fall semester began and interviewed the remaining 19 students from September 14, 2015 until October 6, 2015. As noticed, it was easier to find students in the fall semester and interviews were conducted in a very short period.

#### **2.5. Data collection**

In-depth interviews were conducted to have a detailed understanding and exploration of perceptions, values and beliefs of participants (Bryman, 2012). One-on-one interviews provide access to participants' worldview and an insight into what they observe as relevant and important. Other qualitative methods like focus groups observe ways in which individuals



collectively make sense of a concern and challenge each other's views (Bryman, 2012). Given the sensitivity of the topic, however, interviews are considered more conducive and practical.

I conducted the interviews. I did not use pseudonyms but instead just used the letter "P" to refer to the participant and "A" for my name's initial letter. Each interview had a number as to the sequence of interview, i.e. the first interview was called "Interview #1 conducted on [date]" and the last interview was called "Interview #35 conducted on [date]".

Once students agreed to participate for the interview, I would request a private room such as an available class for the respondent and myself. Interviews were conducted one-on-one with the respondent and me. The average duration of the 34-recorded interviews was 30.5 minutes since one interview was not recorded because the participant did not consent to recording. The longest interview was 1 hour and 40 seconds, while the shortest was 14 minutes and 40 seconds. Most interviews went on smoothly without any interruptions. Respondents were quite interested and were surprised about how long the interview took and they did not even notice.

## **2.6. Topic guide**

A topic guide was prepared and used to direct the interview but I also encouraged participants to have a great deal of leeway in discussion (Bryman, 2012). The guide centered on issues such as whether participants have ever heard of HPV infection and its vaccine, have heard of STIs, sources of information about HPV vaccine (if they have heard of it), acceptability of vaccine, who should recommend the vaccine, whether they visit gynecologists or family medicine physicians, possible facilitators and barriers to receiving the vaccine, the role of external actors and their influence on these students' stand against the vaccine and how to promote HPV vaccination. Questions did not follow on exactly in the way outlined and

additional questions were addressed that were not included in the guide (Bryman, 2012). The topic guide was pilot-tested twice before conducting the interview with two students who were excluded from the sample. There were no major changes but the pilot provided the opportunity to refine the interviewing approach.

It was previously planned to give an educational pamphlet about HPV to participants at the end of the interview. The pamphlet titled “HPV fact sheet” was prepared by the Lebanese Society of Obstetrics and Gynecology and is in English. However, the two pilot interviews conducted showed that the interviews could not proceed without informing participants about HPV since they did not know anything about it. The same was also done by previous studies wherein the researchers distributed or read about HPV to participants who did not know about HPV (Dany et al., 2015; Friedman & Sheppard 2007; Ports et al., 2013). This is why I had to read the HPV fact sheet and then start addressing my questions to them in order to obtain fruitful discussion.

## **2.7. Ethical considerations**

IRB approval for the research project was first requested on February 16, 2015, and included the IRB application, thesis proposal, draft topic guide in English and Arabic and informed consent forms in English and Arabic. The proposal was given protocol number FHS.JD.19, and questions were received from the IRB on March 31, 2015. Questions mainly involved changes to the informed consent forms, and to exclude students, research assistants and staff at the Faculty of Health Sciences to ensure total anonymity. This is why I did not recruit or interview anyone from the Faculty of Health Sciences. A reply was submitted on April 20, 2015 and IRB approval was granted on April 22, 2015.

The study did not cause any harm to participants whether physical or loss of self-esteem or dignity. I believe the study would convey more benefits than risks. There was no invasion of their privacy and no deception was involved. Participants were assured that the hard copies of their interviews and tapes will be kept secure and confidential with the principal investigator/Dr DeJong and their names did not appear anywhere in the study. Only the principal investigator and I had access to the interviews. The analysis of data took place in a private setting with no one else in the room. Any electronic files were stored on a password-protected computer.

Oral informed consent was obtained prior to the interviews. It is important to obtain an informed consent from participants in order to ensure that they fully understand their participation in the study and it gives them the chance to make a decision in a deliberate and conscious way (Bryman, 2012). The informed consent included the following: name of the principal investigator and student, objectives of the study, estimated time of interview, voluntary participation, importance of ensuring anonymity and confidentiality of participants and the name and contact details of the principal investigator and the office of the IRB located in the university. I requested a waiver of written consent from the IRB and was granted approval. The reason for waiver is that the written consent requires the full name of participants along with the signature and this may cause some hesitancy and discomfort for participants to provide their full name.

Participants were informed about the purpose of the study and how the data will be used. They were assured of their rights and freedom to withdraw from the study at any time without any prejudice or consequence. They were given time to ask any questions for further clarification. They were also informed that even though the subject revolved around a STI, they would not be asked anything about sexuality, or about personal or private issues and behavioral

trends. They were only asked if they agree to have courses about sexual health in schools or universities. Socio-demographic data along with contact details were also collected, but to be destroyed after some time and not linked to data derived from discussion (mentioned in proposal and approved by IRB). Interviewees were also asked for consent to audio tape the interviews and for those who accepted, the data was transcribed verbatim for analysis. For those who did not consent to have the interview taped, I typed the interview and took notes very quickly and carefully. Only one student did not agree to have her interview recorded and thus notes were taken instead.

## **2.8. Analysis**

Thematic analysis was undertaken in order to identify major and repeated themes that need to be highlighted. Thematic analysis is one of the most common and robust approaches to qualitative data analysis (Bryman, 2012). It is an integral and ongoing part of qualitative research (Ritchie & Lewis, 2007). It involves identifying themes that relate to the research focus/questions and provides the researcher with the basis for a theoretical understanding of his/her data (Bryman, 2012). Thematic analysis was based on the framework elaborated by Bryman (Bryman, 2012). It was based on a matrix to order and spot the repeated themes (Ritchie & Lewis, 2007) and structure them as central themes and subthemes. These central and subthemes are recurring motifs in the text, which will eventually be used in data analysis. The themes are identified through thorough reading and re-reading of the transcripts. I made sure to keep the language of participants as far as possible, i.e. to type what they said without any edits (Bryman, 2012). This would yield refined and complete material that is synthesized and structured according to the research questions (Ritchie & Lewis, 2007).

The majority of interviews were in English. Some also included Arabic and Armenian sentences. In these cases, they were translated into English for data analysis. I bolded the sentences or information that I found relevant to my topic questions. After going over the interviews and proof reading, I managed to read them again in detail to look for themes. I gathered all interviews in one document and began the coding process according to my research questions.

The three major themes emerging from the interviews were the vaccine barriers, facilitators and strategies for raising awareness about HPV. Special attention was also made to capture emotions expressed by students throughout the interview such as any expression of surprise or confusion and noted it in the analysis. The final phase of coding involved analyzing each interview in order to identify if the final decision narrative mirrored acceptance or resistance to HPV vaccination, i.e. to make a decision in the end of the interviews if the student seemed to favor the vaccine or refuse it. This method was adopted from the study by Hopfer and Clippard (Hopfer & Clippard, 2011).

## **2.9. Significance for policy/interventions**

The study aimed to understand perspectives of young female students regarding HPV vaccination. The study could inform future efforts to develop awareness campaigns about HPV vaccination in Lebanon. Existing literature seems insufficient to help generate interventions to promote HPV vaccination and more qualitative studies are needed.

# CHAPTER 3

## FINDINGS AND DISCUSSION

### **3.1. Description of the sample**

The total number of participants was 35. Their mean age was 22 years, with the youngest participant aged 18 years and the oldest 26 years. Their academic distribution was as following: ten engineering students, four food science students, four nursing students, three psychology students, three medical students, three business students, one agribusiness student, one biology student, one chemistry student, one economics student, one environmental science student, one graphic design student, one psychiatry and one political studies student. The distribution of medical background versus none medical background was as follows: ten from medical background versus twenty-five from non-medical background.

The following paragraphs discuss in detail the study findings according to the three themes: vaccine barriers, vaccine facilitators, and strategies to raise awareness about HPV.

### **3.2. Barriers to the HPV vaccine uptake**

Although respondents had favorable attitudes towards the HPV infection and the HPV vaccine, the number of vaccinated students was seven and the remaining 28 were not vaccinated. Students expressed resistance toward vaccination when hearing about the cost, even though they were positive about the vaccine in the beginning. Vaccine resistance was expressed through opting out of vaccination, no intention to vaccination, postponing vaccination and mere refusal. When evaluating vaccine resistance in detail, the following sub-themes were highlighted: lack of knowledge, lack of concern, general concerns about the HPV vaccine, association of the HPV

vaccine with sexuality, negative influence of parents, lack of discussion of the HPV vaccine by physicians and cost of the HPV vaccine as elaborated below.

### **3.2.1. Lack of knowledge about HPV and the HPV vaccine**

The prevailing barrier for vaccination was lack of knowledge about HPV and the vaccine. Almost all students answered “lack of knowledge” when asked about barriers for HPV vaccination. They added that they did not know about the vaccine because there was no effort to raise awareness about it and they questioned on how they would be vaccinated if they did not know about such a vaccine in the first place. From the 35 students, 13 had not heard either of the virus or the vaccine, while 3 had heard of the virus and 9 students had heard of both the virus and the vaccine. The remaining 10 students had heard about the vaccine but could not identify it as the HPV vaccine or its name (Gardasil and Cervarix). They remembered when I informed them that the vaccine is given in three shots. Four out of these ten students were vaccinated without knowing the name of the vaccine. Almost all had very low or no knowledge about HPV and the vaccine. Similarly, among the seven vaccinated students, one medical student out of the seven knew the name of the vaccine, while the rest did not know the name of the HPV vaccine that they received. They only knew that the vaccine was for girls and was given in three shots. As stated by a business student aged 20 years, “I wanted to ask you there is a vaccine that it is called cervical cancer vaccine, is it this one?” An agribusiness student aged 18 years asked, “I don’t know, but there were two vaccines. A vaccine with two doses? [Unsure] I think it was related to uterus cancer or something like that. I think I took it. I went to the doctor and the doctor informed me that I still have my second dose for the uterus vaccine.” A graphic design student aged 18 years said, “They told me “This one’s just for girls”.” Lack of knowledge appeared to be

a barrier since it might provoke opposition to vaccination. As stated by one interviewee that lack of knowledge may lead to fear of the vaccine, “There’s no social awareness that’s why people maybe they will become afraid or not convinced of the vaccine, or they will say we haven’t heard anyone who had this type of virus, why should we go ahead and do the vaccine?” (Food science student, aged 26 years).

Lack of knowledge about the virus and the vaccine was expressed with the following emotions: surprise, shock and confusion. Surprise when learning that HPV is a STI and that HPV is a common STI. Students could not understand why they were informed about STIs but not about HPV or simply assumed that HPV was not common because they have not heard about it. As one chemistry respondent aged 19 years said,

“I don’t think so, because I do not know about it [HPV]. For example, I do not know if the other participants that you interviewed know about it. But in my opinion, it is not very common. It is the first time I hear about it and I have taken biology all my life and I love biology very much, and I know about diseases and I have never heard about HPV at all. We know about AIDS more, AIDS is more common to us.”

There was expression of shock when hearing that HPV is asymptomatic and could be transmitted from one sexual partner, even by non-penetrative sex and that cervical cancer needs a long time to develop. As expressed by a participant, “As a virus, it is really risky. So it’s like really important to know about that. I mean nobody thinks about it in this way. Everyone thinks that, for instance, it’s like only when you have penetration.” (Economics student, aged 18 years). Another respondent commented, “I didn’t know it was that serious. I thought it was only through sex.” (Food science student, aged 26 years). Another interviewee asked, “You said you can get it through dry humping, which is weird, I don’t know. How is it possible to get it?” (Engineering



student, aged 24 years). Some even assumed that HPV was also genetic. These findings reinforce those from other international studies wherein some participants mentioned AIDS when asked about HPV or thought that HPV can be transmitted through saliva or by sharing needles and blood (Robbins et al., 2010) and some thought that HPV can be transmitted genetically (Head & Cohen, 2012).

Interviewees expressed confusion when learning about the link between HPV and cervical cancer. All students except for medical and nursing students were unaware about this relationship. They used the terms HPV and cervical cancer interchangeably, referring HPV to the cancer itself and not the virus. In many studies elsewhere, confusion over the relationship between HPV and cervical cancer was also noted (Friedman & Sheppard, 2007; Head & Cohen, 2012; Ports et al., 2013; Robbins et al., 2010).

This was in contrast to the previously described survey done in the same university in Lebanon wherein 81.9% of the 215 female students knew about the relation between HPV and cervical cancer and 66.5% knew that HPV was sexually transmitted (Dany et al., 2015). Their sample was representative (response rate = 42%), but there may have been a selection bias, even though 78.9% of students were from non-health related field. It may also be due to the form of the question that was presented in the study in the following way: “The type of cancer highly associated with HPV infection is uterine cervical cancer: True/False/Do not know” that may have triggered students to guess the answer. It can also be merely because students may have already known about HPV in the first place, because they also answered correctly the questions about the transmission mode of HPV, i.e. through genital contact and the importance of vaccination prior to sexual debut. The authors added that those who were in health related field or in the graduate level had higher knowledge than those who were not in health related field or

not in the graduate level. In this thesis, however, many participants were confused about the transmission mode of HPV and inquired about the difference between penetrative and non-penetrative sex. As one respondent asked, “What do you mean [that HPV transmission is] by sexual activity, actual penetration? . . . Kissing?” (Engineering student, aged 20 years). Another participant in this study did not know about the terms involving sex. She only knew about penetrative sex and not any other pertinent terms, like dry humping, anal sex etc.

There was not only lack of knowledge about HPV and the vaccine, but also limited or no knowledge of cervical cancer, genital warts and Pap smear since the majority did not know about these health issues. As explained by one environmental science student aged 25 years, “My grandmother had a cancer and like everything was removed, the ovaries, the uterus, the cervix.” Many students reported that they were not familiar with medical terms and issues after learning about them from the pamphlet since they were not from the medical field. A nursing student aged 26 years articulated, “I think if they are not in the medical field, I’m not sure if they know about it, I don’t think they know about HPV cause there’s no special education about this aspect.” Many students who were not from medical background such as from the engineering field did not know where the cervix is located so I had a schematic photo about the female reproductive system to show them where the cervix is found and some did not know that cervical cancer does not happen in men. As noted by a psychology student aged 19 years, “Men don’t have this type of cancer, it’s very rare.” Some students confused HIV with HPV or thought that HPV is the vaccination for HIV or that HPV meant “health prevention and something for the letter V” but did not come up with a word for “V”. One student mentioned “hernia” when asked about STI but concurred that she meant herpes after being asked. Another one mentioned “H pylori virus” for HPV.

There was a common agreement among all students that schools teach about HIV but not about HPV. No one except for two students had heard about HPV in their schools. When questioned why, one participant stated,

“Honestly if you put it that way, I don’t know because it doesn’t make sense really, because both of them are, like they have to tap in to the sexual intercourse like I don’t know, it doesn’t make sense.” (Psychology student, aged 26 years).

A great number of participants mentioned HIV when asked about STIs. They were aware that HIV is sexually transmitted but only a very few added through blood and needles. However, the majority agreed that schools should teach about HPV too. These findings are in contrast to other studies conducted in the US. For example, many participants in a study among 314 males and females aged 25-45 years (mean age = 35 years) in the US listed gonorrhoea, syphilis, genital herpes, public lice, chlamydia and genital warts when asked about STIs (Friedman & Sheppard, 2007). However, in another study among 20 students and 38 parents in Australia, none of the respondents mentioned anything about genital warts or other STIs and they did not know what the Pap smear was and some answered that they think of AIDS when asked about HPV (Robbins et al., 2010).

### ***3.2.2. Lack of concern about healthcare issues***

Students did not appear to worry about their health and perceived themselves as relatively healthy. They appeared to be less interested in health issues because they said that they did not need to worry about them since they were healthy or simply because they did not know about health issues. Lack of care makes vaccination a challenging choice and may impede the number of vaccine recipients. For instance, an agribusiness student aged 18 years stated,

“Lack of interest. It’s not their fault that they don’t know. People should inform them about this. They should conduct lectures, I don’t know, campaigns or anything similar so that they know.”

Another one indicated, “They just don’t worry as long as they don’t feel that they need to, I mean, they don’t feel something is threatening them, they’re fine... here at AUB, I’m not sure, I mean I don’t have friends who are sexually active or not that I know of.” (Business student, aged 20 years). Students did not seem to care about their health since they perceived themselves as relatively healthy. As one participant revealed, “I’ve never been sick or anyone in my life has, handella [Thank God]. None of my family, it doesn’t come in the family sickness. So it’s not something that crosses my mind much.” (Engineering student, aged 20 years).

According to the HBM, perceived susceptibility is the first construct and refers to “beliefs about the likelihood of getting a disease or condition” (Champion & Skinner, 2008). The majority of participants did not possess this perception and on the contrary were hesitant about the HPV vaccine because they perceived themselves at low risk for the virus. They did not personalize risk based on their behavior, as many voluntarily mentioned not being sexually active.

### ***3.2.3. General concerns about the HPV vaccine***

#### **3.2.3.1. Fear of side effects of the HPV vaccine**

Another barrier for vaccination was overall concern about vaccine safety in regards to side effects. Many students questioned the safety of the vaccine and articulated fear of vaccine side effects. Although they were informed from the pamphlet that the Food and Drug Administration has approved the vaccine, many students preferred to re-consider and postpone

vaccination. In addition, they reported that they preferred to wait just to make there are no side effects. They added that they were under 26 and had time to vaccinate. As quoted by an engineering student aged 19 years, “Ok, in my opinion, I can still take the vaccine until I’m 26 or until I become sexually active.” Another interviewee said, “I would wait more years, especially if you still have time and like and you are not going to engage in anything in the coming months. So you still have time.” (Environmental science student, aged 25 years). Perceived barriers are the “negative aspects of a particular health action” in the HBM that may negatively affect vaccination decision-making (Champion & Skinner, 2008). In this case, the perceived barrier was mainly side effects associated with the HPV vaccine. Side effects were also noted to be a concern for vaccine refusal in a survey conducted in the UAE (among 334 girls aged 15-20 years) (Al-Nuaimi et al., 2011) and in a survey conducted in Saudi Arabia (among 1258 female university students, mean age = 20 years) (Al-Shaikh et al., 2014).

However, many students in this study were not worried about the incidence of side effects and stated that all medications have certain side effects. As explained by one participant, “I’m in the medical field, I know that most vaccines don’t have side effects except for maybe fever or these small symptoms.” (Nursing student, aged 26 years). Another one articulated, “Never in our lives did we ask about the side effects of the vaccines that we took in our childhood. Of course, they used to have side effects.” (Medical student, aged 23 years). Many students added that some girls might be prone to side effects more than others might. As one engineering student aged, 19 years commented,

“I may take a medication, and this medication may cause headache and I may not be able to do anything the whole day, I will not be able to do anything, I’ll sleep. But someone

else may take the medication and nothing will happen to them, their body may be more durable and they can bear such incidents.”

#### 3.2.3.2. Concerns about new vaccines

Concerns about the introduction of a new vaccine in the market seemed to invoke doubt. As one participant indicated, “You know it’s not very popular and I didn’t hear about it before and I think it’s more into literature academic literature than into material available for people.” (Environmental science student, aged 25 years). A vaccinated student also shared a similar experience and explained, “Maybe because it is new and many people do not know like the rest, because I remember when I took the vaccine, I started to tell others, and felt that not everyone knew about it. The people who have taken it are very few.” (Medical student, aged 23 years). This explains why some people may doubt a vaccine that is newly introduced in the market. Another reason for fear of new vaccines may be metaphors about previous occurrences of banning the sale of some medications that were touted as safe in the beginning. Many described the vaccine as newly introduced in the market and this may be a reason that it was not very popular or well-known to people.

#### 3.2.3.3. Concerns about introducing a substance in the body

There was an explicit expression of fear due to introducing a new substance in the body. They assumed that the antivirus of a certain virus would trigger the virus itself. As one participant stated,

“I’m ok with medicine. I don’t like to take it much but for example the antivirus of anything, the shots that people take. I don’t really like to do that because I think when

you introduce the antivirus. No, I'm not with antiviruses, I think when you introduce the antivirus to your body, you'll be attracting the virus itself. This is my point. I think why take the risk of introducing an antivirus to your body, when you have nothing. I think there is a cure for everything now except for cancer.” (Food science student, aged 26 years).

The same student mentioned that she might take a vaccine for breast cancer because she has a history of breast cancer in her family. This may show how students may be interested in a certain type of cancer if they have a family history or have heard a lot about cancer cases, which does not appear to be the same for cervical cancer.

#### 3.2.3.4. Concerns about the effects of the HPV vaccine on fertility and menstruation

Fear of the effects of vaccine on fertility and menstruation and reliance on alternative protection means also legitimized vaccine resistance for some students. As a respondent stated, “I'd rather screen early and detect the cancer and not have to introduce into myself some kind of virus.” (Medical student, aged 23 years). Another one said, “You can take care of yourself through protection of your sexual relationships . . . No I think they should know how to protect, how to have safe relationships rather than the vaccination itself.” (Engineering student, aged 26 years). Other students were concerned about the effect of the vaccine on fertility. As stated by one participant, “Does it affect the ability to have babies?” (Engineering student, aged 20 years). Another one asked, “Does it reduce their [girls'] fertility?” (Psychology student, aged 19 years). Fear of anti-fertility effect of vaccine was also noted in a study among 37 teachers (22 females and 15 males aged 19-51 years), 9 female healthcare workers (aged 33-55 years), 9 religious

leaders (aged 35-50 years), 60 parents (34 females and 26 males aged 18-59 years) and 54 female students (aged 11-17 years) in Tanzania (Remes et al., 2012).

#### 3.2.3.5. Concerns about the pain of injection and cleanliness of the HPV vaccine

Pain associated with injection and concern about vaccine cleanliness were also noted to act as a barrier for vaccination. As a student explained,

“I’m honestly afraid of needles. I am usually afraid of vaccines. I am very interested in medical lab and other pertinent topics, but the only reason that I did not major in it is because of the needles, because I’m really scared, I mean if I see it I feel like my heart is going to stop beating. This is why I hesitate to take the vaccine and also because it may be contaminated and got in contact with someone who has it and you may get the disease. So that is why I do not trust to get vaccination everywhere and I’ve heard that there are many places around me that are not cleaning vaccines. They should be clean. They should be new, the old one should be discarded, even during tattoo-ing. But I am scared, but such things like HPV are even scarier, so I guess I should take it, I don’t know how many minutes does it need to take it? I should take the one-minute risk.” (Chemistry student, aged 19 years).

Interested students who were afraid of vaccination mentioned that they might consider vaccination after learning about the seriousness of the virus.

#### ***3.2.4. The association of the HPV vaccine with sexuality***



#### 3.2.4.1. Stigmatized messages about sex

An overriding concern emerged was stigma associated with the vaccine since it is related to sex. Almost all students professed that sex is a taboo and a much-stigmatized issue in Lebanon and the society would not welcome any subject related to sex. They added that any out-of-wedlock sexual activity is forbidden and takes place in disguise among non-married individuals. The word “sex” is not even used openly in public. As one interviewee explained, “I used to have a priest who used to give me sexual education in school. He used to use censored words. He never used the word “sex”. It was always “intercourse”.” (Food science student, aged 26 years). Another student added, “There are people who if you say “sex”, then they turn off the radio. I have this friend who is like this.” (Engineering student, aged 25 years). It appeared to be challenging to eliminate the stigma of sex in such a community. Many students explained that sex is a taboo that is difficult to normalize and discuss in public even for prevention purposes or medical perspective, especially that many do not even discuss sex with their parents, peers or physicians. As one interviewee stated, “It is like a taboo or they don’t like to talk about it, so I don’t think, I don’t think people or the community is gonna change this in a fast way ... No I feel like it’s gonna be hard to change their, people’s minds’ sets.” (Psychology student, aged 19 years).

Interviewees repeatedly stated that they did not discuss sex related topics with their parents and peers. For example, one participant said, “Even my friends who are not conservative, usually we don’t talk about these matters.” (Engineering student, aged 25 years). Another added, “It’s been a taboo to talk about STDs even though we’re considering ourselves as advanced and open, we still don’t want to tackle subjects which some students might find

insensitive and disrespectful but I think since society does force on us the concept of shame.” (Psychiatry student, aged 26 years).

Only one respondent reported that she learned about sex from her parents. This is in contrast to a study among 36 college women in the US, wherein they talked openly about sex with their parents (Hopfer & Clippard, 2011).

Many students stated that the society along with religion would not accept girls who lose their virginity. Although the majority acknowledged that AUB students are involved in risky behaviors such as sex, they added that most stop at penetration. They made it clear that girls should abstain from sex since it is forbidden to engage in sexual activity before marriage and hence to introduce such a vaccine that is related to STI would not be easily accepted in the society. The same way of thinking was also mentioned in a study in Hong Kong, wherein such a “good girl” ideology could be devastating for the promotion of HPV vaccines. (Siu, 2013, p. 1079). An engineering student, aged 20 years elaborated,

“But as for girls, three quarter of them do everything but they stop at intercourse, because they don’t want to lose their virginity but they do everything else. So, this is the barrier, and not that they don’t want to [engage in sexual activity]. The barrier is that the society will not accept them if they lose their virginity, or for example the guy expects that he can do everything in his life but he wants to marry a virgin, you know that’s the only barrier.”

#### 3.2.4.2. Misconceptions of others about the HPV vaccine affecting decision-making

When asked if they thought that this vaccine would lead to promiscuity, students did not agree. Although they agreed that some parents might have this standpoint, they did not agree that

vaccination would encourage debut in sexual activity. A 23-year-old medical student stated, “This is, I mean, this is one of the controversies of the vaccine, that it should be given at an early age.” A nursing student aged 25 years added, “Supposedly no, but there are people who may consider it a green light.” This was opposite to a study conducted among 60 parents (34 females and 26 males aged 18-59 years) in Tanzania who did not believe that the vaccine would hasten sexual debut (Remes et al., 2012). However, in this study, the importance of protection from cancer outweighed this way of thinking for some students. For example, one respondent mentioned, “I would tell them preventing cancer is much more important than this stuff they’re thinking about.” (Nursing student, aged 26 years). Another participant was surprised as to why there was an interview about this topic and explained, “When you told me that there is an interview about this topic, I thought to myself: “Why is there an interview about the vaccine?” So I thought maybe because it is controversial, because I never thought about it. I have taken the vaccine and I have never in my whole life thought about what others will think about me that [maybe] I’m sexually active and that’s why she is taking it early.” (Medical student, aged 23 years). A student explained about a misconception in that those who receive vaccination would make an impression that the reason for vaccination is that they are sexually active. As she stated, “They lead the student to [engage] sexual behavior? No. I think it’s more of a stigma. If you take the vaccine, it makes the people think that you are sexually active. Not the other way around, it doesn’t make you sexually active.” (Medical student, aged 23 years).

#### 3.2.4.3. Perception of being low risk to contract HPV

Many respondents questioned why they should be vaccinated since they did not engage in sexual activity. A biology student aged 19 years asked, “This is what I was thinking about, if

I'm not sexually active, why would I consider it? But the reality remains in the future especially if it's [the age for vaccination] only effective from 9 to 26." Another one confessed, "I will be open to you I'm not sexually active. So those who are really sexually active, they should be very concerned and they should take care of their health because they're using their physical bodies, etc. They should take care and follow up with their own health." (Engineering student, aged 26 years). There seems to be a misconception about preventive measures among young students in this study wherein they assume that they are fine and do not need to think about present or even future health issues. They did not seem to understand the importance of vaccination prior to exposure to HPV.

A recurring theme was that respondents mostly perceived themselves at low risk due to abstinence from sexual activity. There was a prevalent misconception that the vaccine was required for those who were engaged in sexual activity and hence they should be more interested in such a vaccine. This is why they believed that they had time to wait for vaccination until marriage, which implies that marriage for them means engagement in sexual activity. Perception of low risk and no intention of vaccination was pertinent to how they described the vaccine. A nursing student aged 25 years stated, "So mainly we can conclude that non-sexually active students they shouldn't worry much about it." The majority of students referred to the HPV vaccine as "cervical cancer vaccine" and the same was also noted in an interview of 35 female students aged 19-23 years in Hong Kong (Siu, 2013) and in an interview with 36 female students aged 18-26 years in the US (Hopfer & Clippard, 2011). Most participants believed that they still had time, because they were not involved in any risky behavior.

Perception of low risk was also shown in earlier studies. As one respondent explained in a study in the US, "Lack of perceived susceptibility to HPV as a barrier to vaccine acceptability",

because married women did not perceive themselves at risk for vaccination in focus groups of 314 women aged 25-45 years (Friedman & Sheppard, 2007). Similarly, many participants from 40 Malaysian women aged 13-27 years did not feel the need to receive vaccination since they were not sexually active (Wong, 2008). In a survey conducted among 215 students aged 18-46 years in AUB in Lebanon (mean age = 22 years), more than half of the respondents (59.8%) did not perceive themselves to be at risk for HPV infection (Dany et al., 2015). In a survey conducted in eight dormitories with 800 female students (mean age = 20 years), students did not feel at risk for HPV and cervical cancer since they mentioned that they were young (Koç, 2015).

### ***3.2.5. Role of religion in relation to the HPV vaccine***

The majority of participants did not even mention religion as a barrier for vaccination. As a biology student aged 19 years explained, “You know, it [religion] should not be a barrier, even though there are people who have the mentality that if we are religious, we’re not gonna promote the vaccine, because the vaccine will let you engage in sexual activity. But they are not that aware that this vaccine is not for these purposes, I mean in the future you never know.” Most students mentioned that religion would not stand against vaccination. They mentioned religious barriers regarding sexual activity prior to marriage, but not as a constraint to vaccination. One respondent stated, “Maybe not against the vaccine, but they have a big role for anything related to sexual, especially that I’m a Christian and sometimes I think to myself that I made a mistake and I shouldn’t have [engaged in sexual activity] and maybe I would feel relieved in religion and etc.” (Engineering student, aged 23 years).

According to students, religion promotes health and taking care of one’s body, since the body is a gift from God and thus it should not stand against health. A 26-year-old engineering

student stated, “Not religion. I don’t think religion. I mean religion, ok, religion forbids sexual relations before marriage, etc. and all this. But I have never seen religious people talk about vaccination. They will not be saying anything. Did the Vatican say anything?” A food science student aged 26 years explained, “I love praying, I’m a fan of God. But I don’t mix things together. It’s different, science is science. God gave us brains to think. He gave people brains to start to create new things like a cure for cancer hopefully for the future, cure for HIV, AIDS, bla bla bla. So why not use it when it’s there?” In a study in Tanzania, nine religious leaders (aged 35-50 years) also professed that they would discuss vaccination with their congregations (Remes et al., 2012).

### ***3.2.6. Negative influence of parents***

Parents can also have a negative impact on their children’s vaccination decision-making and hinder vaccination. A great majority of respondents mentioned that parents would discourage vaccination and become suspicious of their children’s sexual behavior. They explained that parents would become doubtful because the virus is sexually transmitted. Interviewees added that parents would assume that their children would be involved in sexual activity if they allowed them to receive vaccination. As one participant explained,

“Parents will definitely be against it especially when it comes to their daughters, they will be completely against the idea. Not just because of the disease because the topic is also related to the girls’ purity. The boys are not a big problem, but for the girls yes. When a girl is pure, they say that this is the best gift to her husband, i.e. it’s the girl’s virginity in the end, so my parents will be totally against it.” (Chemistry student, aged 19 years).

Respondents mentioned that preserving the purity of girls is an important issue in the society. They added that parents would react in shock and fear that their children may start to engage in pre-marital sex. In this study, lack of family communication seemed to act as an obstacle. Lack of communication was also noted for adolescents aged 18 years and above. There seemed to be reluctance to discuss sexual issues with parents for students at any particular age. One student even mentioned that she would not teach her children about sex but preferred that they learn in a different place such as at school.

Participants mentioned that parents might ask questions like “Why would you take it? What are you thinking? What are you planning to do? Who are planning to do it with? Why are you so eager to get this vaccine?” They argued that parents believed that their children were not sexually active and hence at no risk for infection and no need for vaccination. A 19-year-old engineering participant stated, “When the doctor told my mother about this vaccine, my mother was not that interested. She told me “You don’t need this”, and apparently this is why I did not take the vaccine obviously. If it were left to me, I would have taken it. My mother told me “You don’t need it”.” Another one mentioned, “So they say that you’re young and nothing is wrong with you.” (Engineering student, aged 26 years).

Many students noted they were still financially dependent on their parents and even if they were willing to receive vaccination; they would not be able open up the subject to their parents since they mentioned that parents would not approve. However, they stated that if the vaccine had been covered by the insurance system of the university, many of the interested students would have received the vaccine.

The above findings were also reflected in different studies conducted elsewhere. Parents were also described as dubious when learning about their children’s intention to vaccination

(Hopfer & Clippard, 2011; Siu, 2013). Concern of parents about their daughters' possible involvement in pre-marital sex was also emphasized in interviews with 35 female students aged 19-23 years in Hong Kong (Siu, 2013). Female students' sexual attitude was affected by the importance of maintaining virginity as expected from their family and community (Koç, 2015). The importance of purity of girls was an important issue in a survey about HPV among 800 female students in Turkey (Koç, 2015).

### ***3.2.7. Lack of HPV discussion by physicians***

Many participants argued that family medicine doctors have not discussed the HPV vaccine with them. They mentioned that they visit family medicine physicians with a certain healthcare problem. This entails that they consult physicians with a particular complaint. As mentioned by one interviewee, "It was for thyroid, I have a problem with my thyroid." (Medical student, aged 23 years) and hence there would not be any scope for vaccination. In this case, physicians would not be able to take hold of the opportunity to bring up the topic of HPV vaccination. As one participant stated, "The doctor is usually - chief complaint treatment not in general." (Psychiatry student, aged 26 years) inferring that people usually visit doctors with a particular concern and not for a general checkup. Apparently, when students visited family medicine physicians with a certain problem, physicians did not seem to discuss HPV vaccination with them. Many participants mentioned that they have visited family medicine physicians but had never heard about HPV from them. Only one student stated that she accompanied her friend to the gynecologist and there was no discussion of vaccination. Moreover, students did not even feel comfortable in discussing sexual issues with physicians due to fear of judgment that



physicians would assume that they were sexually active, so many tended to avoid visiting their mother's physicians.

#### 3.2.7.1. Visiting family medicine physicians more than gynecologists

A major issue that emerged was that students reported that they do not visit gynecologists as much as they visit family medicine physicians. A nursing student aged 26 years stated, "The fact that our age we don't visit frequently the obstetrics and gynecology doctor so we are more in contact with the family medicine doctor." and meant that married women usually visit gynecologists. This may imply that single women tend to consult family medicine physicians. The health insurance system of the university has a Family Medicine Department wherein students willing to consult a physician should visit a family medicine physician in the beginning and then be referred to a specialist if recommended by the family medicine physician. By this way, students would visit family medicine physicians more often than gynecologists, even though gynecologists should presumably promote HPV vaccination more than family medicine physicians because it is their specialty. Although all students mentioned visiting the Family Medicine Department at the university during matriculation, many stated that the family medicine physician did not open up the topic of HPV. This would undercut vaccination and prevention efforts. Very few students mentioned that they visited gynecologists if they had problems related to the specialty, while the majority referred to the family medicine physician of the university. This shows that family medicine physicians may not represent a primary source of HPV vaccination even though they can reach students more easily. This implies that vaccine promotion should be targeted to family medicine physicians who can reach students more often

than gynecologists. The above suggests that healthcare providers including family medicine physicians, pediatricians and gynecologists should introduce HPV vaccination.

### **3.2.8. HPV vaccine cost**

The high cost of the vaccine was a dominant barrier for a substantial number of students. The vaccine was not affordable for most students especially that many have not yet gained their financial independence. They agreed that students would re-consider vaccination because of the price. Cost led many participants to opt out of vaccination after learning about the price. As one respondent argued, “Yeah, I was thinking of doing it but on what I heard it’s expensive, no I said I have many things to do with this money. I’m not going to make the vaccine, especially that I’m not active, so why?” (Environmental science student, aged 25 years). Some preferred to spend the money on other things rather than on vaccination. As one interviewee mentioned, “I prefer to hang out with my friends, to save the money and pay them for restaurants and cinemas.” (Nursing student, aged 20 years).

Interviewees expressed surprise as to why the vaccine was not covered by insurance or not added to the mandatory list of vaccines like the ones for newborn children. As one respondent stated, “I don’t think I would, because of the cost that I have to pay and I did, I’ve done all of my vaccines, they were all covered.” (Nursing student, aged 25 years). Another one articulated, “I think it should be recommended for every single person to take it as like for the hepatitis B vaccine and other vaccines tetanus, measles, mumps, rubella. It should be one of those vaccines that should be taken.” (Nursing student, aged 26 years). They reported that the vaccine should be accessible by the government; in that the government should interfere to reduce the price of the vaccine or that the insurance companies should cover it. A business

student aged 20 years stated, “There needs to be a way to provide it to more people, make it accessible to more people and before that you need to make people aware how threatening it [HPV] is because it is very serious.” Cost was also a barrier to vaccination in many studies (Dany et al., 2015; Perkins et al., 2014; Reiter et al., 2014; Siu, 2013). The high cost of the vaccine may lead some to start questioning the credibility of the vaccine and refuse vaccination.

### ***3.2.9. Misconception that cervical cancer is uncommon***

Students argued that cervical cancer was not common like other cancers such as breast cancer. As one respondent explained, “There haven’t been cases. We have not seen that this person has cancer suddenly because he/she was having sex. You know? If something happens, it booms like an alarm in the society, but no one has heard anything.” (Engineering student, aged 26 years). One nursing student aged 25 years did not seem to be interested in cervical cancer, because she said that, “Mainly I think it happens to those above 35 or 40, 40, I think yeah.” Many interviewees were surprised as to why they should receive vaccination for a type of cancer that is not very common, even though they acknowledged that the disease was serious and scary. They were aware of the severity of the disease, which in the HBM is known as the perceived severity. Few respondents were still not that worried about cervical cancer. The major reasons were that they have not heard about cases of cervical cancer in their community, there were no awareness campaigns about cervical cancer and maybe since the disease is more frequent in women aged 40 years and above, as expressed by one nursing student.

A detailed exploration of the vaccine facilitators yielded the following sub-themes to be discussed in-depth in the next paragraphs: healthcare provider recommendations, supportive

parental messages, “disease framing that shapes vaccine benefit perceptions” (Hopfer & Clippard, 2011), positive attitudes towards vaccine and free vaccination, as elaborated below.

### **3.3. Facilitators**

All students agreed that it was important to spread awareness about HPV. They had similar perspectives about the virus, describing it as serious and scary. They were eager to learn more about the virus and noted that protection was crucial. Some were frustrated and disappointed as to why they have never heard about the virus before. As one participant said, “I would be graduating; I have no amount of, even culture about this stuff.” (Engineering student, aged 20 years). Another respondent added, “I’m 26, I barely know about it, and this is not acceptable, I’m a science student.” (Food science student, aged 26 years). They also acknowledged that AUB students would share similar perceptions in regards to the virus. As one graphic design aged 18 years student indicated, “I guess yeah [AUB students would be interested] because it is related to their life.”

In regards to the vaccine, many students stated that the HPV vaccine was also important. As one participant said, “It’s [HPV] scary. We need to take it now before sexual activity.” (Business student, aged 20 years). Another interviewee commented, “Ah wow it’s big. I feel like I am going to take the vaccine.” (Biology student, aged 19 years). Vaccine acceptance was eminent through expression of vaccination intent, request of additional questions such as vaccine cost and acknowledgment of vaccination if recommended by physicians.

#### ***3.3.1. Healthcare provider recommendations***

Supportive healthcare recommendations were a prominent theme concerning vaccine acceptance. Physicians were perceived as the most knowledgeable and trustworthy agents with an instrumental role in vaccine promotion. Mothers of vaccinated students had heard about the HPV vaccine through their physicians. One student reported that she was vaccinated because of her mother who was a gynecologist. A substantial number of students indicated that they would receive vaccination if recommended by their physician. This implies that physicians can play the role of advocacy and promotion and students would pay attention to their recommendation. They were deemed the only figure who can give scientific and unbiased data and can even convince and educate parents. Almost all students emphasized the importance of recommendation and trust in physicians and belief in what they recommend. As expressed by one respondent, “He knows my mom very well. So he was telling us that yeah it was a good idea and it is just three vaccines and you can do it in a period of six months.” (Psychology student, aged 19 years). Another participant also had the same opinion and mentioned, “We trust their opinion, their opinion means a lot to me.” (Engineering student, aged 23 years). Another student stated, “Maybe if it’s recommended by the doctor, parents will give their child the vaccine.” (Food science student, aged 26 years).

Students also added that reputation of physicians is important since they would trust the doctor who has good reputation and whom they visit regularly. An engineering student aged 21 years elaborated,

“If it’s a physician that I visit for the first time, and I don’t know anything about his reputation, maybe I will not believe him, maybe I take a second opinion. But if the physician is well-known, his reputation is known, a lot of people have been treated by

him, you can know from his name if he is trustworthy or he is someone new in town. So if he's trustworthy, so why not? Of course, he understands more than us.”

Trust in physicians appeared to influence students to think positively towards the vaccine. Many participants mentioned that people usually trust their physicians and believe in what the physicians tell them and usually implement their recommendation. The importance of blind trust in physicians was also voiced in another study of 36 female students (mean age = 20 years) in the US (Hopfer & Clippard, 2011). In this study, physicians were also described as a credible source of information about HPV infection and vaccination. As one student commented, “I think usually what people usually do here is go to their doctor and ask them.” (Psychology student, aged 26 years). The same was noted in other studies (Di Giuseppe et al., 2008; Friedman & Sheppard, 2007; Ports et al., 2013; Wong, 2008). In this study, physicians' messages seemed to play an influential role in reinforcing validity and significance of HPV vaccination and normalizing vaccination uptake. Having visited a healthcare provider and having heard of vaccination from the healthcare provider appeared to have a positive push for vaccination uptake. There was one case of implicit message of physician's support of vaccination wherein the physician had mentioned to the student that his daughter had also been vaccinated and it was a good idea for the student to receive it too.

According to respondents, healthcare professionals represent the most reliable tool for promoting awareness of such issues to the public. As a psychiatry student aged 26 years explained, “Usually as people we don't argue with our physicians, we find them as gods which is at this point good.” They can help even overcome fears of side effects. A 23-year-old medical student elaborated,

“But I feel like the doctor is the only person, since even if the people watch the video [if supposedly there were rumors of side effects on social media], but they will eventually believe the doctor more than what they see in the video. I feel like the only influence, since if someone who is not a doctor or a specialist and talks to them about this topic even if he/she has read a bit, they will not listen to such a person. For example, if a doctor imposes it then it’s more influential.”

Physicians appeared to help students overcome vaccine associated fears and doubts especially in regards to side effects. For instance, a psychiatry student aged 26 years explained, “Physicians still have higher authority over public so whenever the physician says, “We have to vaccinate”, [then] we have to vaccinate.”

The age of the physician seemed to have a role in promoting vaccination, wherein older physicians may not discuss HPV vaccination with patients. As argued by a psychiatry student aged 26 years. She explained that older physicians may seem more targeted at taking care of general problems and treating cases rather than discussing vaccination for prevention purposes, whereas younger physicians may also be oriented towards preventive medicine. However, nothing was mentioned about pediatricians recommending vaccination, which means that they may not be discussing HPV vaccination with parents. Vaccinated students were aged less than 18 years and their mothers had heard about HPV from the gynecologists rather than the pediatricians. The majority indicated that physicians should inform students about the HPV infection and the HPV vaccine but leave the choice for the student in case of vaccination. In a survey conducted in Lebanon among 215 students aged 18-46 years in AUB (mean age = 22 years), 76% believed that all gynecologists should recommend the vaccine to their patients (Dany et al., 2015).

### ***3.3.2. Supportive parental messages***

Parents can act as an impetus for actual vaccination, especially for adolescents aged less than 18 years. There were seven students who were vaccinated and all were under 18 years at the time of vaccination. Their mothers had actually made the decision for their vaccination. Family support was expressed in the following ways. Their mothers' physicians had recommended them to vaccinate their daughters. Accordingly, their mothers had taken the appointment and paid for the vaccination. Among the non-vaccinated students who were mostly above 18 years, some of their mothers had conveyed positive messages for vaccination by advising their daughter to receive vaccination. As one 23-year-old medical student stated, "She [her mother] used to tell me for example that there's a vaccine that you should take. And she still tells me that there's a vaccine that you should take." However, non-vaccinated students stated that they were not convinced by their mother's recommendation to receive the HPV vaccine. It appeared that students aged above 18 years did not discuss healthcare issues and sex with their parents that often. This may be because the vaccination topic is related to sex. Thus, parental awareness is imperative because mothers can endorse a culture of vaccination by having their daughters vaccinated, especially those aged below 18 years.

According to the HBM, a major drive for undertaking a certain recommended behavior is belief in one's ability to do something described as the self-efficacy construct (Champion & Skinner, 2008). Although participants aged 18 years and above mentioned that they made their own decisions to visit physicians and they were indecisive towards the vaccination. They were not confident enough to make the decision for vaccination and seemed to be reticent when hearing about the cost of the vaccine. However, almost all respondents stated that they would



recommend the vaccine to others, whereas those against vaccination added that they would inform others about the virus.

### ***3.3.3. “Disease framing that shapes vaccine benefit perceptions”***

Student vaccination intent was shaped mostly by the notion of protection against cancer, with very little mention of protection against HPV. Almost all students including nursing students but excluding medical students indirectly referred to the vaccine as the vaccine of cancer or vaccine for women. Their discussion centered on the importance of the vaccine for cancer prevention. A substantial number of students expressed concern about cancer in general, because they had a family history of cancer or described cancer as the most known disease. As one participant stated, “Mostly cancer, cause I hear a lot of things about it.” (Economics student, aged 18 years). Cancer was described as scary because there was no cure for it, or even if treated, it may recur and many people have died from it. As one interviewee noted, “Cancer, because a lot of people around me have cancer and many people die because of cancer, so it’s an important issue.” (Food science student, aged 26 years).

Students did not usually list any healthcare concern other than cancer when asked about healthcare concerns. For example one respondent explained, “Cancer is always the extreme of diseases that anyone could think of, even though there are many diseases that are maybe more risky and more scary and everything. But when we talk about cancer, people are always frustrated like, “Yiii, he has cancer.” (Engineering student, aged 20 years). This suggests that acceptance of vaccination was mostly framed by the importance of cancer prevention, which they deemed themselves at risk more than at risk for the virus. This implies that it is important to address the importance of cancer prevention to enable vaccine acceptance. Therefore, the pursuit

of HPV vaccination as described by students was mostly shaped by the emphasis on cancer rather than on HPV. HPV infection did not seem to scare them as much as the topic of cancer.

What seemed to draw students' attention to HPV was its ability to be transmitted from one sexual partner and its asymptomatic transmission. Only a very few participants mentioned that it was important to receive the vaccine because they may be infected from their asymptomatic future husband. The HBM reports that commitment to adapting to a certain preventive measure would be reinforced when individuals consider themselves at high risk and susceptible to the condition (Champion & Skinner, 2008). In this study, respondents did not perceive themselves at risk for HPV infection as much as for cancer. Focusing on vaccination for HPV and genital warts does not appear to be alluring especially that a considerable number of students did not perceive themselves at risk for the infection.

As for the perceived benefits addressed by the HBM, some students perceived themselves susceptible to infection when they learned that the virus could be transmitted from one partner only, because they added that it would not be possible to find partners who were not sexually active. They also added that vaccination was worthwhile and would help prevent cancer. These participants were concerned about HPV infection and its consequence in that it can cause cancer, which they described as a serious and life-threatening disease. This represents the perceived severity in the HBM, which helps facilitate vaccination uptake.

#### ***3.3.4. Positive attitudes towards the HPV vaccine***

The overriding narrative that appeared in terms of vaccine acceptance was the importance of awareness about HPV. After learning about the virus and vaccine, many students welcomed the idea of such a vaccine before learning about the price of the vaccine. Most students added

that HPV awareness would raise interest in the virus and the vaccine, but nobody mentioned about the importance of learning about cervical cancer. The ones who expressed favorable attitudes towards the vaccine were the ones who asked more questions or welcomed any idea of a new vaccine. As one respondent stated, “I’m with all kinds of vaccines. I would vaccinate myself with everything. I’m with taking all kinds of vaccines” (Nursing student, aged 25 years). Curiosity and interest appeared to act as factors to increase vaccine intent. For instance, one student explained, “I chose biology because it’s my personality, because I love this stuff, that is why when we discussed virus and stuff, I really get excited, I love it, and this is why I accepted to participate, to come in, volunteer and stuff, because I love, and now you taught me a lot of stuff.” (Biology student, aged 19 years). Students who were in general interested in their healthcare and open to vaccines seemed to be more likely to accept vaccination. As one student said, “I didn’t have chicken pox so I took the vaccine for chicken pox, so I’m with taking all kinds of vaccines.” (Psychiatry student, aged 26 years).

### ***3.3.5. Free vaccination***

Some participants expressed intent to vaccination if provided for free. Among the non-vaccinated students, 16 said that they would be vaccinated if the vaccine were more affordable. As one interviewee stated, “I think they would take it if they were more knowledgeable about it.” (Psychiatry student, aged 26 years). A psychology student aged 19 years who has completed her school education in the UAE mentioned that the vaccine was given for free for girls in the school. She stated that around 12 out of the 15 students received vaccination and explained, “They gave us a paper and at the age of grade 11. We didn’t really care, so we gave it to our parents. So, they gave us this vaccine and we were in class, they came and gave us, I mean, they

took us outside the class, and gave us the vaccine. It was free for three times.” She also added that having the vaccine for free is advantageous for students as it may encourage students to receive it.

The following paragraphs discuss different strategies articulated by respondents to raise awareness about HPV and vaccination.

### **3.4. Strategies to raise awareness about HPV and vaccine**

All students agreed that it was important to know about HPV. Although their knowledge was low, all had favorable attitudes towards HPV and expressed desire to learn about its symptoms, transmission, consequences, treatment, cost and testing details including vaccination. Vaccine campaigns should involve messages that “reassure the public of vaccine safety and that vaccination is necessary.” (Hopfer & Clippard, 2011, p. 274).

According to the HBM, cues to action act as triggering events that help influence a certain healthcare behavior, which in this case is vaccination uptake. Cues to action included recommendation by their physicians, financial assistance from their parents and government based campaigns and social media to increase knowledge about infection and vaccine were noted to be triggering events and may act as impediments to vaccination uptake (Champion & Skinner, 2008). Findings from this study show the following sources for vaccine promotion: schools, universities, social media, government and personal communication, as are described below.

#### **3.4.1. Schools**

A great number of participants argued that the school curriculum should include education about HPV along with other STIs like HIV. Participants explained that school students

are more open nowadays and seem to know more about sex than previous generations. There was an idea that some school students may even engage in sexual activity from this age especially boys. As one food science student aged 26 years stated, “But lot of boys are sexually active when they’re 16, 17, 18. They start, they are maybe active, the boys more than the girls. Maybe in schools, because you know these days, children are no longer the same as before.” According to many respondents, schools were more important than university in regards to awareness, because schools already teach about sex and discuss protection. Therefore, they mentioned that schools seemed to have an advantage in initiating effective HPV awareness wherein they can gather students all at once and teach them at the same time. Respondents also added that it may be too late to teach about HPV and sex related topics in universities because students may have already started to engage in unsafe sexual practices without knowing about prevention or HPV. Finally, they explained that university students might have already developed their character, compared to at schools, when they are still developing their character, which would imply that they have already started in sexual activity.

An important concern one nursing student aged 20 years raised is that many boys drop out of school at an early age before 18 years and travel abroad such as to Africa for work. These young men may engage in sexual activity and since they have not learned about STIs or protection at school, they would be at risk. As she elaborated,

“So, this person may not have awareness, so once he travels he will think about satisfying his pleasure. So this is why we should focus on informing them from the young age. We should talk about viruses, cancer, sexually transmitted diseases, because we did not have a lot of idea about STIs. I mean we only know HIV and how it is transmitted. When we

used to discuss STIs at schools, we did not go deep in it, because they assumed that we are not that concerned with it.”

One student made an interesting point wherein schools could even educate parents by having coffee meetings to discuss such topics. This is not possible to achieve in the university, because students in universities are already independent and may not involve parents in their healthcare decision-making. However, parents are more responsible for their children’s health during school years wherein parental approval is requested during school education under the age 18 years. As mentioned by the participant who received vaccination in the UAE, sending information leaflets about HPV can help educate them. She explained, “Sending letters to parents via students” would work. In a study among 169 teachers, female healthcare workers, religious leaders, parents and female students in Tanzania, most participants approved this method of distributing letters to parents (Remes et al., 2012).

### ***3.4.2. Universities***

#### ***3.4.2.1. Mandatory health course***

A substantial number of respondents mentioned that universities can play a pivotal role in raising HPV awareness through a mandatory health course offered to all students. All students voiced the importance of a course that teaches about general health with emphasis on sexual health, contraceptives and STIs. A 19-year-old psychology student explained, “At AUB, there are lots of things that students do not know. There should be a course that teaches about general health, things that involve stigmatized topics, I mean, one should learn about these topics, to make the next generation more knowledgeable.” Students stated that the internet contains a lot of conflicting and misleading information about health issues, so the best source remains in such a

course. This implies that a mandatory course would help reach people who may have health issues that can be preventable but may not be able to prevent or fight it since they do not know about the protection means or they are shy or hesitant to ask the physician. The course would also reach students who have not learned about STIs in schools. A participant made an interesting note that even though students usually study reluctantly but in the end they do not regret learning new information. She said that, “There are many courses that we take, that we try to avoid studying, and complain by saying, “Ouff, we really don’t want to study.” We sit in class unwillingly; we ask why the university is enforcing such things on us. But later on, when we finish the course, we realize we have learned something . . . I mean you feel like you really learned something in the end, and I did not know all this before.” (Psychology student, aged 19 years).

#### 3.4.2.2. Conferences/lectures/seminars

Although many mentioned conferences for raising awareness about HPV, they argued that attendance would not be high. Some added that they personally would not attend such conferences. They attributed lack of attendance due to lack of concern and boredom. They added that conferences about such topics would not be catchy and are considered boring and would not even attract those who are interested to learn due to the stigma of the topic. They explained that those who would be interested to attend would be stigmatized because people would assume that they are the ones who are involved in sexual activity. As a 26-year-old engineering student noted, “Because they’re active in it and they are concerned with this activity. If I’m not sexually active, why would I bother myself to go?” When conferences are optional, students would not be keen on attending or they would not be able to attend since they do not have time. Another

respondent mentioned, “Because not all students are interested to come and learn about such topic.” (Nursing student, aged 26 years). An economics student aged 18 years clarified, “Not through conferences, because nobody listens. I mean for me personally, if someone explains to me in a conference among 1000 attendees, I would not [pay attention].”

Live testimonials were stated among participants who were interested to attend lectures. For instance, one student explained, “Maybe get people together that have had maybe cervical cancer or that have you know been through it, or just to talk about it and get people together and just raise awareness and you know make, let them know that it is important to take it at a young age, disregarding the other things.” (Psychology student, aged 19 years). Another one said that having physicians give such lectures would push them to attend. One interviewee suggested that offering incentives in the form of gifts to students might lead to more attendance in conferences (Engineering student, aged 25 years). Interviewees emphasized the importance of interest in conferences. As one participant stated, “It has to be tempting somehow, for example, I would be interested because I had this interview with you. But if I heard about a random gathering for HPV or anything related to it, I wouldn’t be interested and be like “Ok, come on let’s go”. But if we had something, some temptation I mean, you will have free vaccine.” (Engineering student, aged 20 years). An intriguing element reported was to relate the conference to cancer, which may attract students. As commented by one participant, “How to prevent cancer for girls, for example, before the age of 26?” (Engineering student, aged 25 years). The notion of cancer would help attract more students to conferences, even though not all would be interested to attend.



### 3.4.2.3. Stands/posters/fliers/emails

According to interviewees from nursing background, stands or posters may help raise awareness about HPV. A 26-year-old nursing student stated, “Maybe you can make a stand at AUB, maybe at west hall, or main gate or somewhere umm and to give education for few days to most of the students, of course it won’t cover all the students but at least.” The importance of cancer was also echoed wherein if people find out that there is a talk about cancer they will be more interested to attend. For example, one participant noted,

“I think there is cancer day. People, they still have this day, so why don’t we highlight the causes of cancer and bring into the topic HPV virus? Here like we can put a stand and just stop people by and ask them “Do you know about HPV?” Ok, taking into consideration a lot of students they run for their classes and but still they can have time, even if we distribute brochures, or something.” (Nursing student, aged 20 years).

As for fliers, other students from non-nursing background stated that short, colorful and attractive fliers would be intriguing for students to read. Respondents mentioned that they would not throw away any flier without looking at it. They would read it and the information should be brief and to the point. Many mentioned that emails could even reach more students than stands, posters or fliers. They reported that they open their emails multiple times per day and usually do not delete before reading a little. A food science student aged 26 years emphasized the importance of the medical health center in emailing students and stated,

“Maybe through an email from AUBMC, from someone professional. For example, I am a member of the FDA and I get an email every day . . . I get an email almost every day. This is amazing for me. It’s enough, and I read every single email because the title is interesting and actually grabs my attention.”

### **3.4.3. Social media**

A salient theme emerged by interviewees for raising awareness was through social media. Awareness through television, radio, Facebook, etc. could help reach many students. As one respondent said, “I think awareness on TVs, if they stop talking to stupid people on TVs and bring actually scientists and doctors, it would be better.” (Food science student, aged 26 years). They argued that healthcare professionals should explain about such topics on social media to address misconceptions about the vaccine, through highlighting that the virus can even infect girls who are not involved in sexual activity and get married to one man. Social media can eliminate the taboo around the virus that people involved in risky behaviors should not only be concerned and that the virus infects everyone. A 26-year-old food science student explained, “If you post it on Facebook, and it is on everyone’s page and everyone’s newsfeed, they’re gonna read it without anyone knowing, because it’s only for them. Facebook is only for them.”

Students added that a good strategy would be through posting photos of genital warts and making the title interesting, catchy and attractive. As one participant added, “It would be a great idea to post about HPV on the homepage of AUB instead of posting photos of cats.” (Engineering student, aged 26 years). Another one mentioned, “You know those commercials that would stick to your head, the really serious ones “If you do drugs, you die”; you should do one of those commercials.” (Engineering student, aged 24 years). Social media can help not only raise awareness but also eliminate the stigma that is associated with the topic. This implies that social media can help disseminate such information in an interesting, enjoyable and practical manner. Respondents mentioned that they used social media everywhere from their phones to their laptops. Including such topics on social media would make these health issues more

important and serious, because apparently many students also use social media for awareness purposes and not only for leisure.

#### **3.4.4. Government**

The government plays the most important and crucial role in ensuring that HPV information reaches the public. Almost all students stated that HPV awareness strategies could be achieved successfully through the aid of the government. They added that the government could assist in several ways: adding HPV information in the national curriculum and initiating awareness campaigns about cervical cancer. For example, one respondent mentioned, “You know if this happens on a national level it would be better.” (Environmental science student, aged 25 years). Another one added, “Let it be a social, public solution.” (Engineering student, aged 26 years). They professed that people usually trust the government and follow any recommendation set by the government without any skepticism. As one participant explained, “If it comes from the government in the national curriculum, because when it’s included in the national curriculum, all schools have to accept to teach it. But when it’s left to schools to choose to teach or not, I think a lot of schools will choose not to.” (Psychology student, aged 26 years). According to them, the government is a powerful player described as the “principal of the school”. As one respondent explained, “When the principal tells you something you need to do it or [you] feel like you have the urge to do it.” (Political studies student, aged 26 years). The role of the government appeared to be influential in the accessibility and acceptability of the vaccine. Previously mentioned studies also reported about the importance of government action to promote the vaccine but at a more affordable cost (Remes et al., 2012; Wong, 2008).

### ***3.4.5. Personal communication***

A dominant means for ensuring awareness is spread emphasized by participants is through personal communication. Students reported that word of mouth could also help disseminate awareness about the vaccine. One student added, “Word of mouth is enough for people to know. People will tell each other. Like now you’re telling me. Now I know, I learned a few things. I will tell my partner, who’s my fiancé and my fiancé will tell his friends, who’s also sexually engaged with somebody else and so on and so on.” (Food science student, aged 26 years). Another one stated, “Let’s take an example, if I pass by, I didn’t know about the virus, I heard about it, I will go back to my friends and tell them.” (Nursing student, aged 20 years). Almost all expressed desire to share the knowledge with people in their surroundings and many added that they would recommend such a vaccine to their friends. The importance of cancer prevention was also noticed. As mentioned by one participant, “I would tell them that there’s a vaccine that prevents cervical cancer or at least decreases the incidence of cervical cancer and it’s available so why not to take it? I should take it too.” (Nursing student, aged 26 years). An interesting conversation is presented below regarding recommending the vaccine to their friends:

“Aline: would you recommend such a vaccine to your friends now that you know about it?

Participant: yes definitely

Aline: what would you tell them?

Participant: what you just told me, that there’s a disease we’ve never heard of and one should be aware of it.” (Engineering student, aged 20 years).

However, some students did not seem to discuss vaccination with their friends. An agribusiness student aged 18 years explained that she did find it appropriate to discuss such

topics with her friends and commented, “For instance, suppose I am sitting with my friends, I don’t find it suitable to tell them to take the vaccine... It’s not my job to tell them. It’s their parent’s job. I don’t find myself eligible to go and tell my friend “Go take this vaccine”.” The same was illustrated by another study in the US wherein peers did not seem to have a big influence on vaccination and they do not discuss the topic as well (Hopfer & Clippard, 2011). In this study, participants did not discuss health issues with their friends in general. As noted by a 19-year-old engineering student,

“Personally I have not come across anyone [in AUB] to discuss health issues with. I have not even been in class wherein health issues have been discussed among students. But I am sure that everyone has health issues in his/her family and I am sure that he/she is concerned about these issues, and about prevention from these issues if he/she has happened to suffer from them. I think this is it probably.”

However, what appeared to be important was that even though they did not discuss healthcare issues with their peers, they seemed interested to inform them about this virus. I asked each participant after the interview about her personal opinion of the interview and topic. They all mentioned that they found the topic very interesting and important. None of them seemed to regret participating in the study. They also added that the interview was interesting and not boring at all. Some even said that they did not feel the time of the interview, i.e. how long it took especially that some interviews were long. As one participant stated, “I hope this study will reach many people and affect the lives of many.” (Psychiatry student, aged 26 years). Some even asked me about the results of the interview. As one respondent said, “I would like to see the result of your thesis.” (Food science student, aged 26 years) and one engineering student suggested that I publish the results of the study in the Outlook, which is the newspaper of the students. I ran

across a medical participant who expressed that she was also interested to find out about the results and even volunteered to read the thesis.

#### ***3.4.6. Concluding remarks***

Given the above findings, respondents made it implicit that HPV may be a silent issue, wherein the majority had not heard about the virus or the vaccine. The majority did not even have proper knowledge about other factors related to reproductive health and sexuality. They did not know about cervical cancer, genital warts and Pap smear. Although they had learned about HIV, their knowledge was still very limited because they only knew that it was a STI. Respondents were surprised as to why they had never come across the topic at school or through their physicians or social media. Lack of knowledge was evident in the low number of students who had received the HPV vaccine and appeared to lead people to assume that a certain silent issue is unimportant, uncommon or unsafe.

Vaccine recipients were aged 18 years and below at the time of vaccination through their mothers who had been recommended by their physicians. This shows how parents play an important role in the healthcare of their children and could be targeted for awareness. As for participants aged 18 years and above, the role of parents did not seem to be that prominent. Although some interviewees mentioned that they would still ask for the opinion of their parents in regards to healthcare decision-making, they did not seem to discuss vaccination with their parents. In this case, these students should be reached in other ways such as through their physicians, universities and social media.

Although interviewees were happy to learn about the virus and the HPV vaccine, they were more interested in the virus rather than the vaccine. Vaccine barriers were stronger than

vaccine facilitators. In response to an attempt to explore the reason behind this, participants raised several concerns about the vaccine. There was a general refusal to vaccines especially optional ones such as the HPV vaccine. This was conveyed through their concerns in regards to vaccine safety such as introduction of a foreign substance in their body and misconceptions about vaccine side effects even previously proven as safe. There seems to be fear of vaccines in general even among students who had scientific background. For example, a medical student was also worried about introducing a foreign body.

Another factor for vaccine refusal was cost. Many participants opted out of vaccination as soon as they heard about the cost and described it as an expensive vaccine. However, the same students mentioned that they would have been vaccinated, had the vaccine been offered for free or at lower cost. The same was noted in the previously described survey conducted in Lebanon, wherein 48.9% of female students believed that the vaccine was not affordable even if it offered benefits and respondents with low economic status showed more negative attitudes toward the vaccine (Dany et al., 2015) and in other studies (Perkins et al., 2014; Reiter et al., 2014; Siu, 2013).

In response to an attempt to explore the messages that influence students' decision-making in regards to the vaccine, the following concerns emerged. The association of the vaccine to sexuality made it difficult for students to accept it easily. Even if they showed favorable attitudes in the beginning, they raised concerns about their parents' view that would not be welcoming. Respondents argued that they did not discuss sex with their parents and this is in contrast to international studies (Hopfer & Clippard, 2011). Students seemed to pay attention to their parents, especially their mothers, even if they did not discuss many healthcare issues or sex. This was a similar finding to a survey among 943 female and male students aged 18-30 years in

Lebanon who had reported to engage in penetrative sex, wherein only about 28% of students discussed sex with their mothers (Ghandour et al., 2014).

Another issue raised is the lack of comfort to ask physicians about any topic related to sex or about this vaccine even if they were not sexually active due to fear of judgment and stigma. There was also concern about not visiting gynecologists because of the perception that those who are sexually active should visit gynecologists; they usually visit family medicine physicians instead. They also mentioned that the university healthcare system lets them visit family medicine physicians in the first place and then if need arises are given referral to specialists. This raises another issue since it was noted that not all family medicine physicians discuss HPV with their patients. This was similar to another study in the US wherein the number of physicians who discussed HPV vaccination with their patients was not known (Hopfer & Clippard, 2011).

If we apply the HBM to this case, it is clear that perceived barriers outweighed vaccine facilitators, referred to as “benefits”. Respondents who were against vaccination did not consider the benefits optimal enough to reduce the risks of infection, even though they acknowledged that cancer was severe and they were susceptible to it. However, they did not feel susceptible towards the virus. Most added that the following cues to action would help increase vaccination among students and they included recommendation by their physicians, financial assistance from their parents and government based campaigns and social media, which may help increase their competence in decision-making towards vaccination.

Addressing cancer prevention to increase vaccine acceptability seemed to have a positive impact. Most participants perceived themselves at risk for cancer more than at risk for HPV infection. Low risk perception for the infection did not seem to encourage vaccination as much



as fear of cancer. Their interest was primarily because the infection may cause cancer in the future. The same was noted in the literature wherein the perceived severity of HPV and the perceived vaccine efficacy was irrelevant to HPV vaccine decisions (Hopfer & Clippard, 2011). International studies discussed mixed messages that students received about the vaccine that may lead to vaccine refusal. The same was not noted in this study, since respondents had not even heard about the vaccine. However, many expressed concern about side effects of the vaccine even though they were clearly informed that the vaccine was safe and approved by many reputable organizations.

## CHAPTER 4

### CONCLUSION AND RECOMMENDATIONS

#### **4.1. Lack of knowledge of HPV and sex related issues**

This study is a qualitative study to explore university students' beliefs and attitudes on HPV and the HPV vaccine in Lebanon. It yielded insights on barriers, facilitators to the vaccine as well as these students' general understanding of the health issue. Although the study findings cannot be generalized since that is not the purpose of qualitative research and the sampling was convenience-based, the findings of this study illustrate that there is lack of knowledge about the following health issues among the female students interviewed: STIs including HPV, HPV vaccination and genital warts, the Pap smear and cervical cancer. Respondents, especially those who were not from the medical field, had not heard about HPV infection or the vaccine. As for nursing students, they had learned about HPV in their undergraduate courses but not about the vaccine. Although most participants had learned about HIV at schools, their knowledge was low. They only knew about its transmission mode (that it is transmitted mainly sexually) and very few knew that HIV could also be transmitted through unsafe needles. Non-medical students could not even mention other STIs when asked implying limited knowledge about STIs. None of these non-medical respondents had heard about the Pap smear and only a few knew about a cancer that they assumed might be cervical cancer because of family history. As noted earlier, given widespread lack of knowledge about the HPV vaccine and cervical cancer, I read to them from the educational pamphlet prepared by the Lebanese Society of Obstetrics and Gynecology. I had no other choice but to provide them information about HPV and the vaccine from the beginning

because it would have not been possible to conduct the interview without them knowing what HPV is.

A major barrier to vaccination listed was lack of knowledge about both the virus and the vaccine. The study highlights the necessity of awareness to students about these health issues. Lack of knowledge was expressed through surprise, shock and confusion when hearing about the details of the infection. They did not seem to understand the importance of vaccination prior to sexual activity and prior to being exposed to HPV for prevention purposes for the future. Participants believed that students should learn about these issues in order to protect themselves since students usually assume that they are fine. The targeted age range suggested by respondents for educating females should include adolescent girls from school, to college students and even mothers. Some students also expressed concern as to why boys were not included in vaccination since they were perceived to be more involved in sexual activity at a younger age than girls. However, many agreed that boys could be reached in similar ways to girls. Lack of knowledge about such health related issues appeared to raise suspicion about the vaccine. Suspicion was expressed through concerns about the vaccine side effects, myths of recalling newly introduced vaccines and introduction of a substance in their body.

#### **4.2. Attitudes towards HPV and the vaccine**

After interviewees heard about the virus from the pamphlet, the majority had a favorable attitude towards the virus and identified it as serious and scary. Their primary reason for interest in the virus was when they discovered that it could be transmitted from one partner such as their future husband and that the infection is asymptomatic and could lead to cancer. The notion of the importance of cancer emerged because most students were concerned about cancer and

considered it an important subject that interests all people. They were surprised as to why they had never heard about the virus either at their educational institutions (such as schools and universities) or from social media (television or campaigns). However, all students were interested to learn more about the virus and elaborated that it is important to share awareness about HPV irrespective of their sexual behavior since the majority voluntarily mentioned that they were not sexually active. They all agreed that students who did not have medical background would not know about HPV and acknowledged that AUB students would also share similar positive attitudes towards the virus.

#### **4.3. Vaccine barriers**

Although participants were also positive about the vaccine in the beginning, their interest declined when hearing about the cost. As noted previously, vaccine barriers outweighed vaccine facilitators. Furthermore, interest in the virus was higher than interest in the vaccine. This may imply that people are still dubious and uncertain about vaccination. Fear and resistance of vaccination were expressed through concerns about the vaccine side effects, myths of recalling newly introduced vaccines, fear of injection and introduction of a substance in their body. This was similar to the previously described study in Saudi Arabia when participants expressed concern about side effects and fear of injection (Al-Shaikh et al., 2014). There may be resistance to the vaccine because it is associated with sex, which is a taboo in the Lebanese society, and thus respondents assumed that abstinence from sex would be protective against the virus. In addition, those who refused vaccination mentioned that they perceived themselves at low risk for HPV and that those involved in sexual activity should receive the vaccine.

There was low number of vaccinated students in the study, which could imply low vaccination uptake. Only seven out of the 35 respondents had been vaccinated. One was a medical student who knew about the virus not only because of her major but also because of her mother who happened to be a gynecologist. As for the other vaccinated participants, none of them could identify their vaccination status from the beginning of the interview, but only after hearing about the virus and the vaccine from the pamphlet. They did not even know which vaccine they had received (whether Gardasil or Cervarix), nor did they know about the cost. They added that their mothers had accompanied them to the doctor and what they remembered was the number of shots taken.

#### **4.4. Strategies to raise HPV awareness**

Precise and credible health information is necessary to inform the public, mainly women and parents of vaccine eligible girls, about HPV to help them “make informed decisions about HPV vaccination, manage HPV associated risk, interpret cervical cancer screening results, and treat HPV sequelae.” (Friedman & Sheppard, 2007, p. 473). In this study, participants stated that awareness about STIs, reproductive health and sexuality should start from school and continue in university but could also be accentuated by the government, physicians, social media and personal communication as elaborated in detail below.

##### ***4.4.1. Schools and universities***

The study demonstrates that schools and universities could be a potential source of information for HPV, because a gap was emphasized by respondents concerning sexuality education. Given that schools already teach about STIs, but mainly about HIV, they should also

include HPV and other STIs such as genital warts to the course curriculum. Schools should also teach about sex since many participants argued that the topic of sex was not brought up in-depth at their schools. Interviewees stated that schoolchildren were noted to engage in risky behaviors and hence should be taught about all STIs. Schools were perceived to be more effective in promoting awareness since they could reach all students at once. Although many students had learned about STIs such as HIV from schools, this was not always done through biology courses, because biology courses addressed reproductive health system with brief information about HIV. A great number of students mentioned learning about STIs through lectures given by healthcare providers such as nurses from outside institutions who visited the school and gave lectures about sex. Others mentioned that there was an extracurricular class after school that discussed sex, but was not mandatory and was optional for those interested to attend. Apparently, not all students had clear and factual courses about STIs, which implies deficiency in the educational curriculum about sex.

As for the university, respondents suggested an obligatory course about health and sexuality education to all students. The course could be in the form of tutorial without exams or grade. Awareness about health in general is vital in order to emphasize the importance of prevention since students did not seem to care about their health due to the perception of being relatively healthy. Universities could also promote HPV awareness through conferences, posters, fliers and emails. Students did not express interest in attending conferences or lectures since they regarded them as boring and unimportant. They were more interested in reading about HPV through emails or fliers since they agreed that no student would ignore fliers or emails. They shared common views about posters displayed in the campus but believed that this method may

not reach all students. Participants explained that students were busy all the time and occupied with exams and hence awareness through posters or stands may not be very helpful.

#### ***4.4.2. Attitudes of parents in regards to the vaccine***

The study shows that parents could be educated either through their physicians or through their children's school if schools agree to teach about HPV. In the latter case, schools could gather parents or send educational pamphlets with their children about HPV. Parents could promote vaccination by actually allowing their daughters to receive vaccination especially when their daughters are aged below 18 years. This could be achieved by financing their daughter's vaccination since many participants opted out of vaccination because of the cost. As for women who were older than 18 years, respondents reported variable types of influence by parents on their vaccine decision-making. This is due to that fact that parents who were positive about HPV vaccination seemed to be unable to convince their daughters to receive the vaccination.

On the other hand, some participants feared that parents might not welcome such a vaccine due to the sensitivity of the topic because it involves sex. Students professed that they did not discuss sex related issues with their parents due to fear and judgment. They explained that parents would become doubtful of such a vaccine if their children introduced the topic. They added that parents assumed that their children would not engage in sexual activity prior to marriage and that their children are not aware about sex related issues at this young age. A suggestion would be to introduce the vaccine as a universal recommendation and not as a personal choice (Hopfer & Clippard, 2011). The findings highlight the importance of parental awareness to combat myths about the vaccine in provoking early debut in sexual activity and promiscuity.

#### ***4.4.3. The important role of the government***

Findings from this study pinpoint that the government, healthcare providers as well as social media could also reinforce HPV awareness. First, the government should conduct national campaigns about cervical cancer and address HPV. It should include HPV in the school curriculum along with the remaining STIs already taught at schools even though not in-depth. Rendering the vaccine mandatory by adding it to the list of required adolescent vaccines would be beneficial, since people usually question any preventive medication such as the HPV vaccine that is optional and hence treat it as unimportant. However, this is not an easy task and may seem unfeasible to achieve now. A participant made an interesting comment when discussing required vaccinations for people who travel to African countries. She explained that these vaccines may have some side effects like fever but people are required to be vaccinated prior to traveling irrespective of their intent. Thus, an ideal idea would be to discuss the HPV vaccine with pharmaceutical companies and attempt to make it more affordable, because cost was a major obstacle in the survey conducted in the same university (Dany et al., 2015). The authors suggested, “Government affiliated agencies should fund the vaccine so that the financial barrier does not become a reason to avoid receiving it.” (Dany et al., 2015, p. 1006). Offering the vaccine for free would help increase the number of recipients and this was also suggested by a survey conducted in the UAE (Al-Nuaimi et al., 2011).

#### ***4.4.4. Supportive role of healthcare professionals***

A second key finding is the importance of targeting healthcare professionals to discuss HPV and vaccination in detail with their patients. This holds true for pediatricians and family



medicine physicians who did not seem to discuss these topics as much as gynecologists did. Additionally, respondents did not seem to consult gynecologists as much as they consulted family medicine physicians especially during university years. Physicians should clearly communicate and explain about HPV. The study findings echo the importance of physicians' reputation, which would help increase trust in them. Many participants explained that they would be vaccinated if their physicians recommended them. However, physicians should avoid the potential of blaming women for not choosing vaccination (Hopfer & Clippard, 2011), because women seemed to resist the vaccine because of their limited knowledge about the topic and because of the "stigmatizing, fear inducing and suspicion raising messages" (Friedman & Sheppard, 2007) that they received in regards to the vaccine. The same experience may also apply in the Lebanese society if awareness campaigns do not address HPV in an accurate way. This is where the role of physicians arises in conveying the information in a culturally tailored manner. The major advantage that emerged in the study in regards to physicians is their power in dispelling misconceptions and myths that may arise about HPV and the vaccine and their ability to promote vaccination.

#### ***4.4.5. Role of social media in regards to vaccination***

The study findings shed light on the importance of social media, which appeared to be absent. Social media can be effective in reaching students if their physicians did not address the topic of HPV in the first place because apparently not all family medicine physicians seemed to recommend the vaccine to students. It can also help complement the recommendations of the physicians. It can help overcome misinformation about the vaccine and normalize vaccination uptake. It can spread awareness about cervical cancer and STIs and "empower the public with

complete information about HPV” (Friedman & Sheppard, 2007). What seemed to intrigue students is the perception of the vaccine as a protector against cervical cancer rather than against HPV and this could also be emphasized by social media. The research findings show that social media through television, radio and internet ads would act best in trying to attract the public rather than conferences or lectures.

#### ***4.4.6. Importance of personal communication about the virus and the vaccine***

Personal communication emerged as a crucial method for spreading information about HPV and the HPV vaccine. Respondents believed that word of mouth could also play a role wherein they would inform their friends and relatives about the virus. Participants also wanted to learn more in order to help those who might become infected, especially that they mentioned that many AUB students were involved in risky behaviors including sex. They added that any alarming and important health issue would be rapidly disseminated in the society wherein everyone would discuss it like breast cancer. However, they were surprised as to why they had not come across awareness campaigns about cervical cancer even though they regarded cervical cancer as an important healthcare issue. Thus, they clarified that students may not know about cervical cancer since they have not heard about it as much as they have heard about breast cancer. This is because they did not have family history of cervical cancer and had not come across people with cervical cancer, so they assumed that the disease was not that common. The authors in the study conducted in Saudi Arabia argued that community health awareness programs have centered on breast cancer, diabetes and obesity (Al-Shaikh et al., 2014) rather than HPV and cervical cancer and this appears to be the same case in Lebanon.

#### ***4.4.7. Recommendations***

This study highlights the following recommendations for the future. It is important to add reproductive health in the curriculum at schools. This course should teach about STIs including HPV, contraceptives and sexual health. Schools have another advantage wherein they could also target parents. The university could also reinforce such education by adding a course about general health and sexuality education in the educational curriculum for all majors. This program can be introduced in different forms and not necessarily through a course with exams or a passing score. It can be in the form of tutorials or short lectures given by specialists or nursing or medical students.

The onus also falls on some physicians who did not seem to discuss HPV. This could be addressed in discussion meetings among the three specialists, family medicine physicians, pediatricians and gynecologists as to why there are limited discussions about the HPV vaccine among some healthcare providers. Respondents mentioned that they visit family medicine physicians more regularly than gynecologists. Thus, an idea would be to focus on primary healthcare physicians, especially that students visit them for required tests prior to beginning their academic year in the university.

Finally, the government could also facilitate the process of HPV awareness, eliminate vaccine related myths, overcome fears and concerns and normalize vaccine uptake through national campaigns and intervention programs. Awareness campaigns should take into consideration to provide thorough information about the HPV vaccine stressing that it does not have any impact on fertility or menstruation and that condoms may not provide full protection. It should also try to eliminate the stigma related to the vaccine and explain that everyone should be vaccinated because the vaccine is not only for those who will engage in sexual activity. It could

also help to attempt to negotiate price reductions with pharmaceutical companies that distribute the HPV vaccine. By this way, Pap smear usage and vaccination uptake may increase in the country. The above-mentioned survey conducted in Lebanon showed that students who were from low economic status had negative attitudes towards the HPV vaccine and authors attributed this to the high cost of the vaccine. It showed that 48.9% mentioned that the vaccine was not affordable even though they acknowledged that the vaccine was beneficial and given that, 16.5% of participants were vaccinated (Dany et al., 2015).

Further studies are required to explore the perceptions of students towards the vaccine barriers and ways to overcome them, because barriers outweighed facilitators in this study. Additional studies are also needed to explore attitudes of both female and male students towards sexuality, reproductive health and STIs with emphasis on perceptions around gender. It is also important to address communication patterns with parents and physicians and how the relationship could be improved. Physicians could also be addressed in a study to explore reasons for this apparent lack of recommendation of the vaccine to patients.

The WHO recommends that the most optimal way to decrease cervical cancer incidence and mortality in this region is to introduce HPV vaccination in the national immunization programs (WHO, 2015). As for effective strategies to increase acceptability of the vaccine, the following factors have been shown to be helpful in Africa, Asia and Latin America: mentioning that the vaccine protects against cervical cancer and labeling the vaccine as “cervical cancer vaccine” that has gained more acceptability than its title HPV vaccine, even though it has been scientifically produced for HPV (Cervical Cancer Action, 2014). The reason for this is that most people do not know about HPV, even if information is given, they may not be ready to grasp and accept such a new topic. A main reason for resistance is that people are scared of cancer and will

try their best to be protected against it. Once people learn that there is a vaccine that is safe and effective against cancer, they will readily accept it (Cervical Cancer Action, 2014). Another point is to inform communities that the vaccine does not have any impact on the fertility of girls, which is a common reported concern (Cervical Cancer Action, 2014).

#### ***4.4.8. Strengths and limitations***

To our knowledge, this is the first qualitative study conducted in Lebanon and in the MENA region on the acceptability of the HPV vaccine among university students. Insights gained from this study could help inform how to conduct interventions and how to promote HPV vaccination. As for the limitations, we believe that we may have a personal bias, which was previously suggested by Dr Hopfer and Clippard in their study. They noted “The belief that it is in the interest of women’s long-term health to adopt the HPV vaccine for protection against HPV, which has been linked as a necessary cause of cervical cancer.” (Hopfer & Clippard, 2011, p. 264). Nevertheless, all efforts were made to be neutral as possible in conducting the interviews to minimize this bias.

The survey conducted in AUB showed that a substantial number of students knew about HPV (Dany et al., 2015) unlike our study. This may reflect a potential selection bias in our study in that most of the students interviewed did not know about HPV.

Additionally, an average of 30 minutes for an interview may not seem sufficient to explore all data in-depth and more time would have allowed the possibility of discussing sensitive issues related to gender and sexuality in more depth.

## ANNEX

### 1.1. Distribution of participants by academic field of study

Interviewee	Major	Age
1	Medicine	23
2	Psychology	19
3	Psychiatry	26
4	Nursing	26
5	Nursing	25
6	Environmental science	25
7	Engineering	25
8	Nursing	23
9	Biology	19
10	Engineering	21
11	Business	20
12	Business	20
13	Business	20
14	Engineering	23
15	Medicine	23
16	Medicine	23
17	Engineering	26
18	Graphic design	18
19	Engineering	26
20	Food science	26
21	Economics	18
22	Engineering	24
23	Food science	26
24	Food science	26
25	Food science	26
26	Engineering	20
27	Engineering	25
28	Educational psychology	26
29	Engineering	19
30	Chemistry	19
31	Engineering	26
32	Nursing	20
33	Psychology	19
34	Political studies	26
35	Agribusiness	18

## 2.1. Informed consent in English

Study on "Perceptions of Lebanese female students about the Human Papillomavirus (HPV) vaccine in a university in Lebanon"  
Dr Jocelyn DeJong (Advisor)  
Aline Yacoubian (MS Thesis student)  
Faculty of Health Sciences, AUB

My name is Aline Yacoubian. I am a graduate student in the Department of Epidemiology & Population Health in the Faculty of Health Sciences at AUB. I would like to invite you to participate in a research study about HPV vaccination; its barriers and facilitators. This study is a part of my thesis studies at AUB. The principal investigator is Dr Jocelyn DeJong, Professor and Associate Dean - Dept. of Epidemiology & Population Health, Faculty of Health Sciences.

I will be interviewing 15-30 graduate and undergraduate female AUB students and will use the information as the basis for my thesis. I may also use this information in articles that might be published, as well as in academic presentations.

Your individual privacy and confidentiality of the information you provide will be maintained in all published and written data analysis resulting from the study.

Your participation should take approximately 30 to 60 minutes and will consist of participating in an in-depth interview. Please understand that your participation is entirely on a voluntary basis and you have the right to withdraw your consent or discontinue participation at any time without penalty. Although the subject revolves around a sexually transmitted infection, you will not be asked anything about sexuality, or about personal or private issues and behavioral trends. Participants should be of age 18 and above or 26 and below.

The aims of the study are the following:

- To explore facilitators and barriers towards the uptake of HPV vaccination among female university students aged 18-26.
- To identify university students' perceptions of ways of promoting information about HPV and encouraging vaccination.

If at any time and for any reason, you would prefer not to answer any questions, please feel free to skip those questions and just say 'skip this question'. If at any time you would like to stop participating, please tell me. We can take a break, stop and continue at a later date, or stop altogether. You will not be penalized for deciding to stop participation at any time.

I would like to tape record this interview to make sure that I remember accurately all the information you provide. I will keep these tapes in my laptop that has password and is used by me and the principal investigator exclusively in a private setting. The tapes will be destroyed after three years. These records will be monitored & may be audited without violating confidentiality. You will be provided with a copy of the consent form.

Institutional Review Board  
American University of Beirut  
22 APR 2015  
APPROVED





## 2.2. Informed consent in Arabic

دراسة حول تصورات الطالبات اللبنانيات عن لقاح (HPV) في إحدى الجامعات في لبنان  
الدكتورة Jocelyn Dejong (المستشارة)  
ألين يعقوبيان (طالبة دراسات عليا)  
كلية العلوم الصحية، الجامعة الأميركية في بيروت

اسمي ألين يعقوبيان. أنا طالبة دراسات عليا في قسم علم الأوبئة وصحة السكان في كلية العلوم الصحية في الجامعة الأميركية في بيروت.

وأود أن أدعوكم للمشاركة في دراسة بحثية حول تلقيح الـHPV، الحواجز والعوامل الميسرة. هذه الدراسة هي جزء من أطروحتي في الجامعة الأميركية في بيروت. المحققة الرئيسية هي الدكتورة Jocelyn Dejong، أستاذة وعيدة مشاركة - قسم علم الأوبئة والصحة السكانية، كلية العلوم الصحية.

سأقوم بإجراء مقابلات مع ١٥-٣٠ طالبة في الجامعة الأميركية في بيروت وسيتم استخدام المعلومات كأساس في أطروحتي، في مقالات علمية يمكن نشرها وأيضاً في العروض الأكاديمية. سيتم الحفاظ على خصوصيتك الفردية وسرية المعلومات التي تقدمها في جميع تحاليل البيانات المنشورة والمكتوبة الناتجة عن الدراسة.

إن مشاركتك في هذه الدراسة سوف تأخذ حوالي ٣٠-٦٠ دقيقة وتتضمن المشاركة في مقابلة متعمقة. إن مشاركتك في هذه المقابلة مبنية على أساس التطوع ولديك الحق في سحب موافقتك أو التوقف عن المشاركة في أي وقت دون أي جزاء. على الرغم من أن الموضوع يدور حول العدوى المنقولة جنسياً، البحث لن يتطرق إلى مواضيع جنسية أو حياتك الشخصية والخاصة واتجاهاتك السلوكية. وينبغي أن يكون المشاركون من العمر 18 سنة وأكثر أو 26 وأقل.

أهداف هذه الدراسة هي:

- استكشاف العوامل الميسرة وحواجز الإقبال على تلقيح الـHPV بين طالبات جامعات الذين تتراوح أعمارهم بين 18-26 سنة.
- تحديد تصورات طلبة الكليات عن الطرق لتعزيز المعلومات حول الـHPV وتشجيع التلقيح.

وإذا فضلت في أي وقت ولأي سبب كان عدم الإجابة على أية أسئلة لا تتردد في تخطي هذه الأسئلة واعلمي "لا أريد الإجابة على هذا السؤال". وإذا اردت الانسحاب في أي وقت من هذه المقابلة الرجاء اعلمي، يمكننا أخذ قسط من الراحة، والتوقف والاستمرار في وقت متأخر أو التوقف نهائياً. لن تعاقبي على اتخاذ قرار وقف المشاركة في أي وقت.

أود أن اسجل هذه المقابلة على شريط لتذكر بدقة كل المعلومات التي تقدمها. سأبقي هذه التسجيلات في الكمبيوتر المحمول الشخصي الذي يحتوي على كلمة سرية و يستخدم حصرياً من قبلي ومن قبل الباحثة الرئيسية في مكان منزلي. سيتم تدمير هذه التسجيلات بعد ثلاث سنوات. سيتم مراقبة هذه السجلات ويمكن مراجعتها دون انتهاك سرية وخصوصية المشاركة. وستحصلون على نسخة من استمارة الموافقة.

إذا كان لديك أية أسئلة الرجاء طرحها الآن. وإذا كان لديك أية أسئلة فيما بعد يمكنك الاتصال بي على ألين يعقوبيان، الرقم الخليوي ٣٥ ٠٢٣٧ ٠٠٠، مقسم المكتب ٥ ٢٧٩ والبريد الإلكتروني ay12@aub.edu.lb.

يمكنك أيضاً الاتصال بالباحثة الرئيسية الدكتورة Jocelyn Dejong، أستاذة وعيدة مشاركة - قسم علم الأوبئة والصحة السكانية، كلية العلوم الصحية. مقسم المكتب ٤٦٤٤ والبريد الإلكتروني jd16@aub.edu.lb.

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## رسالة الإخطار

إذا كان لديك أسئلة حول حقوقك كمشاركة في هذا البحث، يمكنك التواصل مع مكتب IRB في الجامعة الأميركية في بيروت.

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هل أنت مهتمة في المشاركة في هذا البحث؟  
نعم  
لا

الموافقة على تسجيل المقابلة  
هل يمكنني تسجيل هذه المقابلة؟  
نعم  
لا

الموافقة على اقتباس من المقابلة  
قد أود أن أقتبس من هذه المقابلة في قراءات ومقالات. سيتم استخدام اسم مستعار من أجل حماية هويتك.  
هل تسمحين لي أن أقتبس من هذه المقابلة؟  
نعم  
لا

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### 3.1. Topic guide in English

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#### Topic guide

Topic area	
General health practices and concerns	<ul style="list-style-type: none"> <li>• Decisions about health care utilization</li> <li>• Importance of health care among college students</li> <li>• Health issues among college students</li> <li>• Involvement of parents in health care decisions</li> </ul>
Knowledge and awareness of HPV	<ul style="list-style-type: none"> <li>• Knowledge about HPV and the implications of infection</li> <li>• Knowledge about cervical cancer</li> <li>• Knowledge about screening for cervical cancer</li> <li>• Barriers to acquiring knowledge about HPV among college students</li> <li>• Knowledge about how HPV is transmitted</li> <li>• Knowledge about STIs in general</li> <li>• Sources of knowledge</li> <li>• Barriers to knowledge about the HPV vaccine among college students</li> <li>• Information needs and preferences</li> </ul>
Knowledge and awareness of HPV vaccine Barriers of HPV vaccine	<ul style="list-style-type: none"> <li>• Knowledge about HPV vaccine</li> <li>• Sources of knowledge</li> <li>• Barriers to knowledge about the HPV vaccine among college students</li> <li>• Information needs and preferences</li> <li>• Involvement of parents in getting vaccination</li> <li>• Vaccine-associated fears and concerns</li> <li>• Ways to overcome fears and concerns</li> </ul>
Facilitators for HPV vaccine	<ul style="list-style-type: none"> <li>• Credible and trusted sources of information about HPV vaccine</li> <li>• Role of primary healthcare physicians in decisions around taking the HPV vaccine or not</li> </ul>

References: Allen et al. Journal of Adolescent Health 45 (2009) 535–537 (Focus group study)  
Farzaneh et al. Med J Malaysia Vol 66 No 5 December 2011 (Survey)

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### 3.2. Topic guide in Arabic

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#### دليل الموضوع

مجال الموضوع	
الممارسات الصحية والخاوف العامة	القرارات حول الاستفادة من الخدمات الصحية اهمية الرعاية الصحية لطلبة الكليات المشاكل الصحية بين طلبة الكليات إشراك الاهل في القرارات المتعلقة حول الرعاية الصحية
المعرفة والتوعية حول ال HPV	المعرفة عن ال HPV المعرفة عن سرطان عنق الرحم المعرفة عن الكشف عن سرطان عنق الرحم حواجز كسب المعرفة عن ال HPV بين طلبة الكليات المعرفة عن طريقة نقل ال HPV المعرفة عن العدوى المنقولة جنسيا بشكل عام مصادر المعرفة حواجز المعرفة عن ال HPV بين طلبة الكليات احتياجات المعلومات والتفضيلات
المعرفة والتوعية حول تلقيح ال HPV حواجز عن تلقيح ال HPV	المعرفة عن تلقيح ال HPV مصادر المعرفة حواجز المعرفة عن تلقيح ال HPV بين طلبة الكليات احتياجات المعلومات والتفضيلات إشراك الاهل في القرارات المتعلقة حول الحصول على تلقيح ال HPV الخاوف والتلق من تلقيح ال HPV طرق تحطلي الخاوف والتلق حواجز المعرفة عن تلقيح ال HPV بين طلبة الكليات
العوامل المسيرة لتلقيح ال HPV	مصادر موثوقة للحصول على معلومات عن تلقيح ال HPV دور الطب العائلي في القرارات حول تلقيح ال HPV

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## 4.1. Educational pamphlet prepared by the Lebanese Society of Obstetrics and Gynecology



### HPV Fact Sheet

#### • What is HPV?

HPV is the short form for Human Papillomavirus. HPV is a family of very common viruses that cause almost all cervical cancers, plus a variety of other problems like common warts, genital warts and plantar warts. HPV also causes cancers of the vulva, vagina, anus, and cancers of the head and neck. Both women and men become infected with HPV types that cause cervical cancer through sexual intercourse and sexual contact.

#### • Are there different kinds of HPV?

There are over 100 strains of the HPV virus, with over 35 known different HPV types that infect the genital tract. At least 15 of these can lead to cervical cancer. The most common cancer-causing types of the virus are 16 and 18. This is important to know because these two cervical cancer vaccine protects against these two types 100% of the time.

#### • How does HPV work?

An HPV infection rarely leads to cervical cancer. In most women infected with HPV, the cells in the cervix return to normal after the body's immune system destroys the HPV infection without the woman ever having any signs or symptoms of the HPV. However, some HPV infections do not go away and may remain present in the cervical cells for years. The Long-standing infection can lead to changes in the cells that can progress to cancer. It is these cell changes that a Pap test can detect. When the HPV virus is not treated, the cells will continue to change until they become cervical cancer. Because it can last so long in your body before any cell changes occur, it is difficult to know who transmitted the HPV to you. Don't make assumptions and blame your current partner.

#### • How common is HPV?

HPV is the most common sexually transmitted infection. It is common in all sexually active people. At least 70% of sexually active people will get HPV at some time in their lives. HPV is most common in young women and men who are in their late teens and early 20s. The CDC estimates that there are 6.2 million new infections each year in the United States. Since it is so common, there is nothing to be ashamed about. If you are diagnosed with HPV, talk to your health care provider about it. Get answers to your questions.

#### • What are the signs and symptoms of HPV?

Most women and men do not know when they are infected with HPV. There are usually no symptoms. Anyone who has ever had genital contact with another person, not just sexual intercourse, can get HPV. Both men and women can get it—and pass it on to their sex partners without even realizing it. An abnormal Pap test result is usually a woman's first clue of an infection, but most HPV-infected women do not ever have an abnormal Pap test result. HPV is not HIV or Herpes. They are different viruses with different symptoms.

#### • How can I protect against HPV infection?

The only sure way to prevent HPV infection is to abstain from all sexual activity. Sexually active adults can reduce their risk by being in mutually faithful relationship with someone who has had no other or few sex partners, or by limiting their number of sex partners. But even persons with only one lifetime sex partner can get HPV if their partner has had previous partners.

#### • Do condoms protect against HPV?

Recent studies suggest that condoms provide some protection against the HPV infection. However, since condoms do not cover all areas of the body involved in sexual contact that can be the source of the spread of HPV, they do not offer complete protection. However, in addition to HPV protection, they do reduce the risk of HIV and other sexually transmitted disease when used all the time and in the right way.



**• What are the factors that increase your risk for HPV?**

You are more likely to get HPV if you smoke, if you start having sex at a young age, or if you have many sex partners or your sex partner has many sex partners.

**• Why isn't there an HPV test for men?**

The diseases that HPV causes in women do not happen in men. So the test results will not be helpful for a man.

**• How do I know if I have HPV?**

The only way to know if you have an HPV infection is if your health care provider tests you for the virus. This may be done directly from the Pap test container or by using an additional swab at the time of the Pap test. Your health care provider may or may not perform the HPV test, depending on many factors including your age and risk factors. The only way to tell if a cancer-causing type of HPV infection has caused the cells in your cervix to change is to have a Pap test. Signs of an HPV infection may appear weeks, months or years after the first infection, which is why it is important to have regular Pap tests and HPV tests as recommended by your health care provider.

**• I've been told I have HPV. How do I know if or when it has cleared up?**

Most HPV infections will clear on their own. Those women that have long-standing HPV infections are more at risk for developing cervical precancerous lesions or cervical cancer. There is no shot or pill that is available to clear your HPV infection. Hopefully, as in most women, your body's immune system will clear your HPV infection on its own. If your health care provider is performing an HPV test on you, and your test is negative, it is likely that your infection cleared.

**• Should I get an HPV test?**

The HPV test detects high-risk—or cancer causing—types of HPV that can cause changes in your cervical cells. However, this test cannot tell you the exact type of high-risk HPV. Women 30 years of age and older can have both the Pap test and the HPV test for cervical cancer screening. The HPV test can also be used to help understand the meaning of a borderline abnormal Pap test. In that situation, your health care provider may do an HPV test to find out more about the abnormal cells. However, if your Pap test shows a definite pre-cancerous abnormality, an HPV test is not needed. Virtually all of these changes are caused by HPV. You can assume the HPV test will be positive.



**• When should I get tested for cervical cancer?**

You should start getting regular Pap tests at age 21, or within three years of the first time you have sex—whichever happens first. The Pap test is one of the most reliable and effective cancer screening tests available. In addition to the Pap test—the main test for cervical cancer—the HPV test may be used for screening women aged 30 years and older, or at any age for those who have unclear Pap test results. If you are 30 or older, and your screening tests are normal, your chance of getting cervical cancer in the next few years is very low. For that reason, your doctor may tell you that you will not need another screening test for up to three years. But you should still go to the doctor regularly for a check-up that may include a pelvic exam. It also is important for you to continue getting a Pap test regularly—even if you think you are too old to have a child, or are not having sex anymore. If you are older than 65 and have had normal Pap test results for several years, or if you have had your cervix removed (during an operation called a hysterectomy), your doctor may tell you it is okay to stop getting regular Pap tests.

**• Can you prevent HPV?**

Good news! There is now a vaccine to prevent HPV infection. Girls and women age 9-26 can protect themselves from HPV and cervical changes related to HPV by getting the cervical cancer vaccine.

**• Is there a cure for HPV?**

Currently, there is no cure for the virus. There are treatments for the cervical changes that HPV can cause. If your Pap and HPV tests show that cells in your cervix have changed, you should discuss treatment options with your health care provider.

**• How does the vaccine work?**

The cervical cancer vaccine takes prevention a giant leap forward by blocking the first step along the path-way to cervical cancer, HPV infection. The vaccine is given in the arm or thigh three times—at the first visit, two months later and four months after that. The best protection is achieved after all three shots are given. It is not known at this time whether booster shots will be needed later. Studies show that the vaccine is extremely safe. There are no live viruses in the vaccine. The most common side effects are redness and soreness where the shot was given. Headaches (like when you have a cold or fever) are also common. Fever can also occur. Over the counter pain and fever medications will help if you have symptoms. As with any new medication, safety issues will continue to be monitored.



**Remember you can prevent Cervical Cancer by:**

**How can I prevent it?**

- Get the HPV vaccine. It protects against the types of HPV that most often cause cervical, vaginal, and vulvar cancers. It is given in a series of three shots. The vaccine is recommended for 11 and 12 year old girls. It is also recommended for girls and women aged 13 through 26 who did not get any or all of the shots when they were younger. (Note: The vaccine can be given to girls beginning at age 9.)
- See your doctor regularly for a Pap test that can find cervical precancer.
- Follow up with your doctor if your test results are not normal.
- Don't smoke.
- Use condoms during sex.\*
- Limit your number of sexual partners.

*With the compliments of the Lebanese Society of Obstetrics and Gynecology  
(Women's health promotion)*



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