



What's Stopping Malaysian Women from Uptaking HPV Screening and Vaccines?: A Study on Barriers

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Abstract. Cervical cancer is the third most common cancer in Malaysia where HPV16 and HPV18 genotypes are more prevalent among 88.7% of women. It is preventable if the pre-cancerous cells were identified early via Pap smear, HPV DNA or Visual Inspection with Acetic Acid (VIA) test. Prophylactic HPV vaccines were proven effective in clinical trials, also acting as a viable prevention strategy. However, the uptake rates of vaccination and screening remain unclear makes it difficult to understand the coverage levels and barriers. The screening tests are essential for every woman and it requires high motivation to uptake it. Somehow, it is important to identify and address the potential barriers that affect their motivation level. This study had conducted a pilot study, gathering respondents' feedbacks on existing barriers and other issues they face, preventing them from uptaking HPV screening and vaccination. The findings revealed that respondents (n = 32) avoided undergoing screening tests and (n = 28) of them failed to complete the vaccination. Furthermore, their knowledge level were also tested and low awareness level were found as 60% (n = 24) of them misunderstood that HPV spreads through blood and other bodily fluids, 80% (n = 32) never knew that sexually active ones must undergo screening test and 57.5% (n = 23) misunderstood that HPV infection will show noticeable symptoms. This study had also proved that there is lack of awareness among women and 47.5% of them worried about the accuracy of screening results. Hence, the future work will be focused entirely on identifying the relationship between proposed variables and women's intention to uptake preventive measures against cervical cancer.

Keywords: Cervical Cancer · HPV · Women · Knowledge · Vaccination · Screening

1 Introduction

Non-communicable diseases (NCDs) such as cervical cancer has been classified as the top fourth cause of death among women worldwide, about 529,828 women diagnosed

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with cervical cancer and 275,128 of them died from the disease, making the lifetime risk for male (1 in 10) and female (1 in 9) [1][2]. Cervical cancer incidence rate increases with age after 30 years old and reaches its risk peak at ages above 60. Among Malaysians, Malays (38%, n = 1,531) found to be highly affected by cervical cancer followed by Chinese (33%, n = 1,316) and Indians (7%, n = 273) [1]. Human papillomavirus (HPV) infection is the leading cause of cervical cancer which has led the renowned scientists to create the vaccines. HPV vaccination has been licensed in more than 100 countries, globally 74 countries (including 33 WHO European regions) [3]. In 2012, free HPV immunisation programme was successively integrated into school health programme in Malaysia to vaccinate 250,000 school girls aged 13 years old for free [4].

To detect the carcinogenic cells, Pap smear was introduced in 1960s, providing 22% of national coverage. Later, HPV DNA and VIA based screening test was introduced. The sensitivity rate of HPV DNA test for cervical intraepithelial neoplasia grade 2 or 3 is 94.6% (95% CI, 84.2% to 100%) compared to Pap Smear 55.4% (95% CI, 33.6% to 77.2%) while VIA had sensitivity of 79% [2]. However, consistent failure to screen targeted 40% of the eligible women aged between 20–65 years old was recorded [4]. In addition to the current COVID-19 pandemic, the focus was given more towards preventing the virus spread causing delays in accessing other healthcare services. Majority women are educated but gaps still exist in terms of having less exposure on methods of prevention, symptoms and complications. This paper aims to address these barriers that affect women's intention to uptake screening and vaccination during pandemic period. This study also sought out to observe women's screening and vaccination acceptance behaviour, also will allow us to create intervention to fulfil specific educational or motivational needs aiming to influence their intention.

2 Related Studies on Barriers

Perceived barriers influences screening and vaccination rate severely and still poses as a serious issue among women [5]. The barriers are influenced by socio-demographical (education and marital status), socio-economic, social support, knowledge, attitudes, perceptions, financial status, health system and other psychological or emotional factors. Most of the barriers identified can be arranged into two major parts such as personal and structural impediments [6]. Personal barriers include the fear of getting diagnosed with cervical cancer, fear of intimate nature of examination, loss of virginity, embarrassment, fear of pain, lack of awareness, unclear of the screening procedures and social influence [7].

While, structural barriers mostly on affordability of screening test costs, inconvenience to attend a session, less routine doctor visits, unavailability of child care services and lack of doctor recommendations[7]. Embarrassment and fear always referred to as the top facilitator, followed by knowledge which includes lack of awareness to HPV infections and cervical cancer [6]. Some women are still uncertain about the purpose of getting screened and know very little about cervical cancer. Besides that, it is important to note that family commitment and their positive encouragements to uptake the preventive measures plays a huge role in decision making process to participate in HPV screening and vaccination.

Often, cervical cancer is rarely conversed among loved ones or acquaintances as they are perceived as immoral and the thoughts of it as sexually transmitted disease. This corresponds to another study that highlights how certain woman believed screening tests endangers their virginity which evokes fear of pursuing these tests [8]. Besides screening tests, HPV self-sampling is also facing low acceptance as it requires women to perform the test on their own. Previous studies show that some women feel less confident in performing the test, worried if they are collecting the sample from right location hence, they prefer administered sampling process by the medical practitioners. This proves that there are gaps in terms of health literacy among women on HPV infection and cervical cancer as lack of knowledge is the cause of low self-confidence among women to uptake screening tests and vaccination [9].

Besides that, misinformation also exists among women where that vaccinated ones are not susceptible to HPV infections and it allows them to avoid uptaking screening tests since they are not experiencing any symptoms [7]. Some of them feel that Pap smear is not effective in terms of screening [7]. There are also social stigmas that are reported on visiting gynaecologist's center, confidentiality and getting consent [10]. Relatively, another study highlighted the age-specific barriers such as privacy from parents, transportation difficulties and continuity of accessing the medical services after moving away from school [11]. The study stated that young girls tend to avoid screening tests considering they are sexually inactive and concerned about the pain and discomfort during the pelvic examination.

Hence, age is one of the important predictors for HPV screening beliefs or adherence for cancer related programmes. This study had also addressed some other issues such as longstanding social beliefs including difficulties in accessing the health services and the perceived cost in terms of doing the screening test particularly, HPV self-sampling tests. Women perceived additional costs when it comes to visiting the clinics for screening or vaccination. Somehow, these huddles are categorised under provider level, health system or policies. Malaysian health ministry had continuously worked on serving women through community outreach programs, no-cost screening tests and insurance to cover the health related services including diagnosis and treatment [8].

3 Materials and Methods

A self-administered online survey was used to perform pilot study among Malaysian women aged between 15 to 65 years old. This study had collected socio-demographic characteristics, knowledge exposure level and respondents' opinion on potential barriers. The survey was distributed via email and social media, made available for two months. Approval to perform the study was granted by Faculty of Information, Science and Technology (FIST), Multimedia University (MMU) Melaka, fulfilled under Yayasan Muhibah Tan Sri Fng Ah Seng grant prior to initiation of the study. Informed consent was received from the respondents before conducting the study.

4 Results and Discussions

As in Table 2, about 40 respondents willingly participated in this study aged between 15 to 64 years old from different states around Malaysia. Majority respondents approached

Table 1. HPV Knowledge Assessment

HPV Knowledge Items (% responded correctly)		
	<i>N</i>	%
Is HPV infection transmitted via genital skin-to-skin contact?	26	65
Do you think HPV infection causes cervical cancer?	32	80
Can HPV infection cause abnormal Pap test or HPV DNA results?	33	82.5
Can HPV spread through blood or other bodily fluids?	16	40
Do you know that HPV vaccine requires at least two doses?	25	62.5
Is HPV vaccine is most effective if given to women who have never had sex?	26	65
Have you heard of Pap smear or HPV DNA test?	24	60
Is sexually active women must undergo HPV screening annually?	8	20
Does HPV infection show any noticeable symptoms?	17	42.5
Is cervical cancer can be cured if it is detected early?	35	87.5

were Indians (57.5%) followed by Chinese (22.5%), Malay (17.5%) and other races including Christian (2.5%). 30% ($n = 12$) of them were married and 70% ($n = 28$) claimed that they were single. 5% ($n = 38$) of them had no family history of cervical cancer. This study discovered that about (30%, $n = 12$) of the respondents took vaccines while only (20%, $n = 8$) of them uptake screening tests.

4.1 HPV Knowledge and Awareness

This study analysed knowledge exposure level by using yes/no questions comprising ten items as shown in Table 1. Majority did not answer all the questions correctly, proving that misinformation on HPV infection, cervical cancer, screening and vaccination exist. Approximately 65% ($n = 26$) of them are aware that HPV infection can be transmitted via genital skin to skin contact and 80% ($n = 32$) knows that HPV infection causes cervical cancer. Majority (82.5%, $n = 33$) realise that HPV infection causes abnormal screening test results while, 40% knew that HPV does not spread through bodily fluids

such as semen, blood or saliva. 62.5% understood that HPV vaccine require at least two doses while, 65% aware that HPV vaccines were most effective if given to women who have never had sex or before their first sexual exposure. The vaccines also benefit women who had past exposure to cervical cancer, already sexually active before vaccination or had gone through treatment for precancerous lesions [12].

Meanwhile, the findings revealed that 60% of the respondents knew types of HPV screening tests such as Pap smear, HPV DNA and VIA. However, only 20% knew sexually active women undergo HPV screening every 5 years. In general, women can go through HPV screening starting at age of 21, every three years for women aged between 21 to 29 years old and for women aged 30 to 65 can go through the test every 5 years [13]. It is notable that 42.5% (n = 17) of the respondents are aware that HPV infection does not show any noticeable symptoms such as (pain, itching or burning sensations) until it invokes any other serious health problems. The regular check-ups helps in detecting the changes in the cells found in cervix and through the screening test health care professionals may determine the extent of the abnormality. Overall, majority of the respondents 87.5% (n = 35) realises that cervical cancer can be cured if it is detected early.

4.2 Barriers Towards HPV Screening and Vaccination

This study had presented six open and close-ended questions to get their response on the potential barriers. The descriptive statistics of the findings were represented in Table 2 representing strongly disagree (SD), disagree (D), neutral (N), agree (A) and strongly agree (SA). Meanwhile, respondents' comments were categorised into three groups (positive, neutral and negative) using sentiment analysis. Table 3 shows the findings from sentiment classification.

Table 2 shows that 37.5% of the respondents strongly disagreed and 27.5% disagreed to the statement "*I am afraid to uptake screening test for the fear of getting bad results*". About 47.5% of them gave positive feedback and claimed that they are not afraid to uptake the test; prefer to get diagnosed earlier to stay healthy. They have also claimed that they are not worried about getting bad results but prefer to complete the Pap smear test, just to avoid spreading the HPV infection to others. There were neutral responses on the importance of going through screening test, acceptance, moving on with the health condition. Few respondents commented about avoiding screening tests since they are sexually not active. Some voiced their concerns on finding the right medical institution to access the sexual health services. Only 17.5% negatively opinionated against the statement that they are worried of getting bad results, fear of undergoing the screening procedure and worried of feeling uncomfortable during the procedure.

Majority (70%, n = 28) were strongly disagreed and disagreed (12.5%, n = 5) to the statement ("*My religion does not permit HPV vaccination*"). About 60% of them left positive comments that religion belief is not a reason to refuse screening and vaccination and all the religion known to allow HPV vaccination. Only few 7.5% (n = 3) had responded that they were unsure about the statement. In terms of the statement ("*My family members or spouse does not allow me to go through HPV screening test and vaccination*"), majority had strongly disagreed (72.5%, n = 29) and disagreed (12.5%, n = 5) while, 52.5% gave positive comments that their partner or family members

Table 2. Descriptive Statistics of Perceived Barriers

SD N(%)	D N(%)	A N(%)	SA N(%)
I am afraid to uptake screening test for the fear of getting bad results.			
15 (37.5%)	11 (27.5%)	3 (7.5%)	2 (5.0%)
My religion does not permit HPV vaccination.			
28 (70.0%)	5 (12.5%)	2 (5.0%)	0 (0.0%)
My family members or spouse does not allow me to go through HPV screening test and vaccination.			
29 (72.5%)	5 (12.5%)	1 (2.5%)	0 (0.0%)
The doctor or medical expert did not recommend HPV screening or vaccination.			
13 (32.5%)	10 (25.0%)	4 (10.0%)	3 (7.5%)
I prefer a female doctor to conduct HPV screening procedure.			
3 (7.5%)	1 (2.5%)	11 (27.5%)	17 (42.5%)
Overall, I am in doubt with the efficacy of screening procedure and HPV vaccination.			
5 (12.5%)	10 (25.0%)	7 (17.5%)	2 (5.0%)

encourages them to go through HPV screening tests or vaccination and mentions that it is their responsibility to keep their loved ones healthy.

It is notable in the findings that 32.5% of the women strongly disagreed and disagreed (25%, n = 10) to the statement (“*The doctor or medical expert did not recommend HPV screening or vaccination*”). However, 40% left negative comments that they have never consulted a doctor for screening or vaccination, no prior experience of uptaking such tests, no recommendation by doctors and worried to uptake the screening test or vaccination without doctor’s recommendation. Few of them mentioned about not attending medical appointment as they forgotten and busy with their busy lifestyle. The rest had responded positively that doctors always recommend HPV screening and vaccination and due to the case they have completed the tests.

Most of them 42.5% strongly agreed and agreed (27.5%, n = 11) to the statement (“*I prefer a female doctor to conduct HPV screening procedure*”) and had expressed their opinions positively (55%, n = 22) that they feel comfortable to have a female doctor to perform the screening procedure. They feel safe and comfortable to share about their health issues or concerns during the screening procedure. Few respondents claimed that

Table 3. Sentiment Classification

Frequency (%)		
Positive	Neutral	Negative
22 (55%)	16 (40%)	2 (5%)
Overall, I am in doubt with the efficacy of screening procedure and HPV vaccination.		
15 (37.5%)	19 (47.5%)	6 (15%)
I am afraid to uptake screening test for the fear of getting bad results.		
28 (70.0%)	2 (5.0%)	0 (0.0%)
My religion does not permit HPV vaccination.		
24 (60%)	13 (32.5%)	3 (7.5%)
My family members or spouse does not allow me to go through HPV screening test and vaccination.		
21 (52.5%)	12 (30%)	7 (17.5%)
The doctor or medical expert did not recommend HPV screening or vaccination.		
10 (25%)	14 (35%)	16 (40%)
I prefer a female doctor to conduct HPV screening procedure.		

they have gone through the screening procedure with a female doctor and felt confident to go through the procedure even when through shyness. Only few of them responded negatively to the statement about exposing their private part and feeling discomfort while screening.

For the last statement (“*Overall, I am in doubt with the efficacy of screening procedure and HPV vaccination*”), 10% of the respondents disagreed and 5% of them strongly disagreed, while, 40% gave neutral response. About 37.5% left positive comments on the statement that they have no doubts, claimed that they believe in HPV screening procedure and vaccines, and also agreed that it is an efficient step to prevent cervical cancer early. About 47.5% of them gave neutral response claiming that there is lack of awareness among women and they are worried about the accuracy of screening results. The findings still suggests that respondents still have doubts on screening procedure and vaccines.

5 Conclusion

This study explained the issues faced by women and highlighted the importance of taking necessary efforts in line with existing WHO global strategies in reducing cervical cancer cases. The barriers that affect uptake rate can be categorised into socio-demographics, risk perception, attitude, motivation, personal preferences and knowledge. The findings show awareness level towards screening and vaccination is low among women in Malaysia. Various barriers including having poor understanding on HPV infections and cervical cancer, poor perceived susceptibility, lack of perceived severity and lack of impact in perceiving benefits via existing immunisation campaigns are more prevalent. Factors related to healthcare center include difficulties to locate nearest HPV screening and vaccination services. Some of the other barriers such as fear of getting bad screening results or to undergo Pap smear screening procedure, lack of recommendation from the doctors and lack of information on HPV. These findings are in line with other studies that explains barriers involving lack of support from spouse and other loved ones, lack of knowledge and use of contraceptives [14][15].

The findings also included age-specific barriers such as concerns on getting permission from parents for vaccination, transportation issues and continuity of vaccine schedule after shifting to different school [7]. The youngsters also expressed their concerns on the pain, discomfort and shyness in exposing private part during pelvic examination. Besides that, this study revealed respondents that are involved were not financially constrained since majority of them were from higher socio-economic backgrounds and they feel price of the vaccine and tests are still affordable. This study had also identified youngsters that worry about losing their virginity during the pelvic examination. Several studies suggest the same concern, the fear of hymen tear during the examination which directly relates to social stigma [14]. This signifies that it is important to educate them on concept of virginity and sexual well-being. This study had also discovered some women who are still unaware of the potential health benefits of going through screening and vaccination at early stage.

In conjunction to the concerns identified, a health related intervention that acts as a knowledge hub can be developed for women. In Malaysia, lack of emphasis was given towards designing an educational e-health intervention that can handle key barriers such as fear, embarrassment, low motivation, poor perceived susceptibility and lack of knowledge. By addressing these barriers, our Malaysian health system can meet the target set by WHO, to vaccinate 90% of girls by age of 15, 70% of women screened at age of 35 and 45 [16]. Also, multiple misconceptions on HPV screening and vaccination will be eradicated, which encourages more woman to approach for screening test and vaccination without waiting for their health condition to worsen.

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