

Acceptability of Cervical Cancer Vaccination Among Women: A Bangladeshi Perspective

By

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A thesis submitted to the School of Pharmacy in partial fulfillment of the requirements for
the degree of
Bachelor of Pharmacy

School of Pharmacy
Brac University
October 2024

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Declaration

It is hereby declared that

1. The project submitted is my own original work while completing degree at Brac University.
2. The project does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing.
3. The project does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution.
4. I have acknowledged all main sources of help.

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Approval

The project titled “Acceptability of Cervical Cancer Vaccination Among Women: A Bangladeshi Perspective” submitted by Jannatul Ferdouse Ome (19346053) of Summer, 2019 has been accepted as satisfactory in partial fulfillment of the requirement for the degree of Bachelor of Pharmacy.

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Ethics Statement

This project does not involve any kind of animal and human trial.

Abstract

The most practical method as a safeguard against intrusive cervical cancer is to obtain a preventive vaccination against the human papillomavirus (HPV). Women from Bangladesh have a higher risk of getting cervical cancer, which occurs second most frequently. In this research work, a survey was conducted using a questionnaire to evaluate the acceptability of HPV vaccination among Bangladeshi women for the prevention of cervical cancer. In the study, 73 volunteers participated, among them 64.4% of participants were aware of the availability of the HPV vaccine, and over 97.3% of them had heard about cervical cancer. However, only 28.8% of the participants had received the HPV vaccination. Among the participants, 76.7% had adolescent daughters, 80.7% of whom had received the vaccine through their schools or madrasas offered by the Bangladesh Government in 2023. Based on the findings of this study, the majority of the female participants have not received the vaccination and were not willing to do so, while the majority of their daughters received it.

Keywords: HPV vaccination, cervical cancer, consciousness, individuals, warnings, adolescent daughters.

Dedication

Dedicated to my parents

Acknowledgment

Initially, for all of Allah's bounties, I wish to express my gratitude, which has been provided to me in an attempt to give me the will and courage to finish this project.

It gives me great pleasure to extend my heartfelt appreciation to Dr. Nishat Zareen Khair, Ma'am, my academic supervisor, for her tremendous support and direction during this project. She was a real source of guidance and encouragement for me as I completed my project. I owe her a great deal for her insightful study-related remarks and suggestions, which aided me in finishing my project.

Last but not least, I would not be able to do anything without the unwavering support of my parents and husband who are a constant source of inspiration for me to step beyond my comfort zone. Thanks to their kind prayers and support, I am almost done with my degree.

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List of Acronyms

CC	Cervical Cancer
ICC	Invasive Cervical Cancer
HPV	Human Papillomavirus
GOB	Government of Bangladesh
GAVI	Global Alliance for Vaccines and Immunization
IARC	International Agency for Research on Cancer
NCDs	Noncommunicable Diseases
WHO	World Health Organization
HR	High Risk
LR	Low Risk
EPI	Expanded Programme on Immunization
UNICEF	The United Nations International Children's Emergency Fund

Chapter 1

Introduction

1.1 Status of Cervical Cancer in Bangladesh

Cervical cancer is the name for cancer that starts in the cells of the cervix. Here, the underlying cause of it is aberrant cell proliferation, which may extend to further bodily parts. Additionally, Bangladeshi women are more likely to get the second most prevalent type of cancer than any other malignancy, cervical cancer, taking responsibility for 12% of all cancer cases. Around, 8,068 fresh cases (10.6 out of every 100,000 women) as well as 5,214 deaths (7.1 out of 100,000 females) were reported in 2018 due to cervical cancer.

Moreover, in the absence of intervention, it is projected that Bangladesh has 505,703 women who will pass away from cervical cancer within 2070, and that number will rise to 1,042,859 by 2120 (Uddin et al., 2023). On the other hand, the Bangladesh Cancer Hospital saw a different number of patients with cervical cancer every year. WHO statistics from 2020 show that there were 4971 documented fatalities and 8268 new incidences of cervical cancer and the age distribution of Bangladesh's general population is another important consideration ('Burden and Trends of Cancer in Bangladesh: Insights into Breast, Lung, Cervical, and Liver Cancers and Implications for Public Health Interventions', 2023). It has been reported by the International Agency for Research on Cancer that 10,362 fatalities and 17 686 new cases of cervical cancer are reported each year in Bangladesh, where over 50 million women are susceptible to this illness. So, cervical cancer can be handled if detected in the first phase (Hoque et al., 2021). Furthermore, managing cervical cancer is considered a crucial aspect of addressing noncommunicable diseases (NCDs). So, the Government of Bangladesh (GOB) is prioritizing NCDs to achieve the Sustainable Development Goal, and there is a collaboration between the public and commercial sectors to combat cervical cancer (Uddin et al., 2023).

However, a global strategy to eradicate cervical cancer by 2020–2030 was announced by the WHO which included three main objectives: 90% of girls by the age of 15 receiving an HPV vaccination; 70 percent of females by the time they are 35 and once more by the time they are 45 receiving high-precision screening tests, and 90 percent of female patients with cervical cancer diagnoses obtaining medical care (A. Sultana et al., 2023).

1.2 Worldwide Prevalence of Cervical Cancer

Around 500,000 females are affected by cervical cancer annually, making it the fourth most frequent malignancy among women globally (Bardají et al., 2018). There were 342,000 instances of cervical cancer overall in 2020, including 604,000 new situations 90% of newly diagnosed cases of cervical cancer are in developing countries, heavily taxing these countries, according to a 2020 World Health Organization (WHO) Factsheet.

Moreover, cervical cancer is a big concern for women globally in the twenty-first century as well as in nations with low and moderate levels of income, cervical cancer remains the primary factor contributing to death from cancer for women every year, with around 500,000 new instances and a 50% fatality rate found in Asia also cervical cancer ranks as the sixth most prevalent illness among female Americans, making up approximately 10,370 fresh instances and 3,710 deaths yearly within the US (Amin, 2023).

WHO states that the research conducted by IARC (International Agency for Research on Cancer), and reports from other sources, India had an elevated rate of cervical cancer, having occurrence as well as mortality rates are 16.2% and 9.5%, correspondingly also there were 7.9 instances of cervical cancer for every 100,000 people throughout India (Parvez et al., 2024). Africa is thought to account for 20% of the global cases of invasive cervical cancer (ICC) or about 120000 instances annually. It is ICC that is the root of cancer-related deaths in sub-

Saharan Africa's female population, which serves as the worldwide hub of the epidemic of HIV, with over eleven million HIV-positive females who reside in the area as well in contrast to Australia, which is expected to have 942 freshly filed cases of Invasive Cervical Cancer (Seventy-one per 100,000 women) and 222 fatalities from ICC by 2022, Europe, a high-income region, anticipated to have 58169 women with ICC yearly (10.7 out of every 100,000 females) as well as 25989 ladies who pass away as a result of Invasive Cervical Cancer (Rahangdale et al., 2022).

1.3 Human Papillomavirus (HPV)

HPV, known as the papillomavirus that affects humans is a contributing element in 6 distinct cancer formats: oropharyngeal, penile, anal, vulvar, cervical, and vaginal (Dike et al., 2023). Moreover, the papillomavirus in humans is almost always cervical cancer's cause, and not only does HPV account for incidences of cervical cancer comprise 99.7%. However, it also performs a significant function in further head and neck cancers and anogenital disorders. However, the main reason behind cervical cancer is morbidity and demise globally out of all diseases linked to HPV (C. S. Sultana, 2021).

Here, two kinds of HPVs are distinguished: Non-oncogenic low-risk (LR) and oncogenic high-risk (HR) varieties. About 200 different HPV genotypes are known to exist while genital warts and other benign disorders are commonly associated with the LR-HPV kinds, malignancy is connected to the HR-HPV types (Parvez et al., 2024). In 40.42% of Bangladeshi women with aberrant cervical epithelial cells, HPV type 16/18 infection was found. Moreover, in Bangladesh, HPV types 16 and 18 were found in 81.82%, 9.09%, and 6.06% of cases of cervical cancer, respectively (C. S. Sultana, 2021).

Cervical cancer has been related to high-risk HPV strains 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, and 59 respectively, and the most cancer-causing of all HR-HPVs, HR-HPV 16, is the primary reason for cervical cancer. Together, HPVs 16 and 18 are linked to 70 percent of cases of cervical cancer as well as HPV16 and HPV18 are responsible for around 90% of these lesions and the most prevalent viruses connected to warts on the genitalia as well as HPV6 and HPV11 (Parvez et al., 2024).

Within the Papillomaviridae family, HPV is a double-stranded DNA virus that is not encapsulated and is comparatively tiny, it is linked to proteins that resemble histones and is shielded by a capsid made of the late proteins L1 and L2. The primary capsid component, L1, has 72 copies per virion, while the secondary capsid component, L2, has varying numbers of copies (C. S. Sultana, 2021).

1.4 Cervical Cancer Vaccine

Invasive cervical cancer can be prevented most effectively with primary prevention with the HPV vaccine and subsequent prevention with screening (Bhuiyan et al., 2018). But vaccination against HPV is the main prevention strategy against cervical cancer and it primarily targets females between the ages of 9 and 15 (A. Sultana et al., 2023). In 1977, Harald Zur Hausen made the initial description of the connection between cervical cancer and persistent HPV infection. Following 12 years of research, it was determined that HPV versions 18 and 16 played a role throughout cervical cancer development and this discovery, made possible by Harald Zur Hausen and his colleagues in 1983 and 1984, also established the basis for the notion of vaccination to stop the spread of HPV and cervical cancer (C. S. Sultana, 2021).

Since 2006, adolescent females have been the primary focus of the HPV vaccination. At present, over 100 nations are running national HPV vaccination programs, with the majority of

these programs aimed primarily at early adolescent females, confirming the HPV vaccine's long-term preventative impact is crucial, though, as women are still at risk of contracting the virus throughout their sexual activities (Kurosawa et al., 2022). Moreover, for national cervical cancer prevention initiatives to be implemented effectively, data on women's perceptions and knowledge regarding HPV vaccine and cervical cancer are required (Bhuiyan et al., 2018).

So, three different HPV vaccinations are now administered globally to stop the onset of cervical cancer where the four-valent Gardasil® vaccine protects against HPV 6/11 (HPV type with reduced risk: LR-HPV), and HR-HPV, HPV 16/18, the bivalent vaccine Cervarix® protects from HPV 16/18 (high-risk HPV type: HR-HPV), and Gardasil 9®, a nine-valent vaccination, guards against the LR-HPV, HPV 6/11, and the HR-HPV, HPV 16/18/31/33/45/52. Moreover, 70% of instances of cervical cancer may be avoided with Cervarix® and Gardasil® together as well as Gardasil-9® could prevent almost 90% of cervical cancer (Kurosawa et al., 2022).

However, high-vaccination-rate nations have reported notable reductions in high-grade cervical lesion incidence of 41–57% and HPV prevalence of 73–85%, and the dual-dose Cervarix vaccine to protect against HPV-18 and 16 was made available in 2009, with the release in 2006 of the quadrivalent HPV vaccination, which focuses on HPV-6, 11, 16, and 18. (A. Sultana et al., 2023).

1.5 Effectiveness of Cervical Cancer Vaccination

The vaccination's efficacy was the most obvious in girls who were given vaccinations before turning 17, as they demonstrated an almost 90% reduction in the prevalence of cervical cancer throughout the eleven-year research span (2006–2017) in contrast to women who weren't given the vaccination (Khunatorn, n.d.). Even with the high incidence of HPV-related malignancies and the vaccine's effectiveness, Black females have a lower HPV vaccination rate. Moreover,

compared to White women, non-Hispanic Black women had a vaccination rate of 45.2% in 2018 vs 56.5% for non-Hispanic White women (Dike et al., 2023).

Moreover, how well the 4-valent vaccine works against the infection of HPV in 1564 ladies in the 18–35 age range (average age of 24) was examined in an Australian trial conducted in 2020. Here, nine to twelve years after the immunization program's launch, the unvaccinated group had a 5.5% HPV infection rate (OR 0.13, 95% CI 0.05–0.30) compared to the immunized cohort's 0.7% HPV infection percentage of the vaccine which targets HPV types (Kurosawa et al., 2022).

Furthermore, there has been a notable 86% decrease in adolescent girls and 71% in young adult women's genital warts and HPV-related malignancies within the United States thus of the HPV vaccination. Additionally, women who have received the vaccine have reduced their risk of cervical cancer by 40%. Even though HPV vaccinations are effective, the country's three-dose series completion rate has remained low, at 51.1% in 2018 and 54.2% in 2019 and girls' immunization rates are greater in some nations, such as Australia, where the rate is 79% also given that vaccination rates are very low in the US, efforts must be made to boost parents' confidence and intention to vaccinate their teenage children (Dike et al., 2023).

However, it has recently been revealed that Japanese ladies in their 25s and 26s were protected against HPV16/18 and 31/45/52 infection for nine years with the bivalent vaccination. With a notable distinction ($p = 0.0018$) between the groups that were and weren't immunized, the rate of HPV16/18 contamination was 0% (0/150) in the former and 5.4% of the latter (15/279), and the vaccination worked 100% of the time. The vaccinated group's infection with HPV 31/45/52 of the cross-protective type rate was notably lower than the unvaccinated group's (3.3% vs. 10.0%: $p = 0.013$) (Kurosawa et al., 2022).

1.6 Cervical Cancer Vaccination in Bangladesh

The most effective way to avoid encroaching cervical cancer, which is the secondary contributing factor of mortality from cancer among Bangladeshi women, is to get vaccinated against the human papillomavirus (HPV) (Bhuiyan et al., 2018). In Bangladesh, the HPV vaccination has been on the market since 2006 (A. Sultana et al., 2023). Conversely, HPV vaccination offers low-resource settings—like Bangladesh—a chance to lower the incidence of cervical cancer by promoting first-line shielding and effective acceptance of the vaccine among the targeted teenage population. The Global Alliance for Vaccines and Immunizations (GAVI) provided funding for the Ministry of Health to provide HPV vaccines for the first time in Bangladesh in 2016 (Bhuiyan et al., 2018).

On Monday, October 2, 2023, the human papillomavirus (HPV) vaccination program was officially launched at the NIPSOM auditorium in Mohakhali, Dhaka and with assistance from UNICEF Bangladesh, Gavi, WHO Bangladesh, and the Vaccine Alliance, the government of Bangladesh arranged this event and the main guest during the function was Reputable Minister of Health and Family Welfare Zahid Maleque, MP. (Bashar & Alam, n.d.). Eleven girls received the Cervarix vaccination on that occasion: two from DPS STS School, one from Viqarunnisa Noon School and College, seven from Azimpur Government Girls School and College, and one from Narayanganj Govt Girls High School (Vaccination Campaign against Cervical Cancer Launched, n.d.).

Moreover, the safe and incredibly successful vaccination would be given away free of charge to more than ten million females studying in the fifth grade through ninth grade, encompassing people who were not enrolled in school and were between the ages of 10 and 14, after enrolling on the "Vaxepi" app or website, eligible girls would get the vaccine at their educational institutions or approved immunization clinics during the first phase, which would take place in Dhaka over eighteen days. Furthermore, UNICEF has given 2.3 million HPV vaccinations to

every girl in the Dhaka division with the help of Gavi, and other divisions will be covered in 2024 (*Government Launches Nationwide Human Papillomavirus (HPV) Vaccination Campaign*, n.d.).

After the tetanus-diphtheria vaccination, Bangladesh has added this second Expanded Programme on Immunization (EPI) vaccine for teenage females and it has established ambitious goals, such as achieving 95% coverage and providing this revolutionary HPV vaccination to a diverse group of people in a way that is both affordable and fair. However, the EPI matched these ambitions with the WHO's goal of completely vaccinating 90% of females who turn 15 as part of the global initiative to destroy cervical cancer before 2030, as well as the Gavi, the Vaccine Alliance, that seeks to vaccinate 86 million teenagers and girls by 2025 (*Bangladesh Takes Major Step to Reduce Cervical Cancer Deaths _ PATH*, n.d.).

1.7 Rational Behind the Survey

HPV, also known as the human papillomavirus, is what leads to 99% of cases of cervical cancer. Even though, there are over 660,000 instances of cervical cancer and close to 350,000 fatalities annually, above 90% of these cases and deaths happen in nations with low and medium incomes. Nevertheless, thanks to scientific advancements as well as the tenacity of researchers, we now have a vaccination that is both secure and efficient (the HPV vaccine) that can stop infections (Zaidi, n.d.).

I attempted to learn about People's acceptance of cervical cancer vaccination and their readiness or alertness to acquire the vaccination to ward from cervical cancer through this survey. Moreover, through this survey, I hope to learn more about whether our teenage girls have received the cervical cancer vaccination even after the government chose to make it available

to girls in schools between the ages of 10 to 14 and why those who have not wanted to administer the vaccine did not want to.

1.8 Aims and Objectives

The main goals of this study are to:

1. Determine how well-informed Bangladeshi women and adolescent girls are on cervical cancer vaccinations.
2. To determine if women and teenage girls in Bangladesh were alerted about the cervical cancer vaccination campaign that the Bangladeshi government carried out on October 2, 2023.
3. To ascertain whether or not Bangladeshi women and adolescent girls will accept the cervical cancer vaccine.
4. To determine tactics, information sources, and cervical cancer vaccination acceptance to pinpoint areas that require more focus and rules to boost the adoption of the cervical cancer vaccine in Bangladesh as well as reduce the disease's burden.

Chapter 2

Methodology

This survey, utilizing a questionnaire was done for this project between May 7, 2024, and June 20, 2024. The survey was composed of a first structured questionnaire that was disseminated in person and *via* various online social media platforms. Here, through the use of non-probability-based purposive sampling, women from a variety of backgrounds were contacted *via* email, multiple online platforms (such as WhatsApp, and Messenger), and in-person interactions. Moreover, by choosing to click the web link, participants voluntarily participated in the survey and agreed to fill out the questions without any pressure. Furthermore, after the questionnaire was fully completed, verbal consent was acquired for the in-person survey. Additionally, in this study, a structured questionnaire consisting of 33 items was utilized and a copy of the questionnaire is provided in appendix I.

Here, the literature evaluation served as the basis for designing the questionnaire to ensure that it would meet the study's goals. Initially, the respondents were asked a series of standard questions about their age, occupation, educational qualification, living area, and the average monthly income of their family. Moreover, these were followed by an exploration of their knowledge and attitudes regarding cervical cancer, as well as questions about vaccinations to ascertain the respondents' willingness to acquire cervical cancer vaccine. In addition, the respondents were asked if they had any teenage girls, if they had received vaccinations or not *via* their school which was arranged by the Bangladesh Government, and if not, they had consented to get the vaccine or not.

Chapter 3

3.1 Result & Discussion

A total of 73 women willingly participated in the survey and that survey form was given to them in person and by using an online platform. Table 1 explains the Socio-demographic characteristics of these mothers and teenage girls extracted from the questionnaire. Of the participants, 26% were under 30, 37% of the population were between the ages of 30 and 39, and again 37% were between the ages of 40 and 50. Furthermore, it was evident that no participant was 50 or older.

According to the American Cancer Society, among women, those between the ages of 35 and 44 are the most commonly diagnosed with cervical cancer, with a 50-year-old average. In women under the age of 20, it hardly manifests itself, and a lot of older women are ignorant that as they become older, they have a chance of getting cervical cancer, as well as more than 20% of cervical cancer cases are diagnosed in women over the age of 65. However, among the ladies who have been receiving screening tests for cervical cancer before reaching 65 years old, these malignancies are uncommon (*Cervical Cancer Statistics _ Key Facts About Cervical Cancer _ American Cancer Society*, n.d.).

Furthermore, among those taking part, 97.3% are situated in an urban area and 2.7% live in a rural region; 8.2% have a minimum of an elementary education level, 43.8% possess a secondary degree of qualification, and the majority 47.9% own a bachelor's degree or more. While 89% of people are married, 11% are unmarried. Additionally, 16.4% of the participants were students, 23.3% were workers, 12.3% were businesswomen, and 47.9% of the participants were housewives. Although, the household income of 8.2% of participants was less than 50,000 Tk, 21.9% of the incomes of participants' households were between 50,000-1,50,000 Tk and 69.9% of the household earnings of the participants were greater than 1,50,000 Tk.

Table 1: Socio-demographic characteristics of the participants.

Features	The Quantity of Participants, N=73	Percentage (%)
Age (Years)		
<30	19	26
30-39	27	37
40-50	27	37
>50	0	0
Educational Qualification		
Primary	6	8.2
Secondary	32	43.8
Higher	35	47.9
No Education	0	0
Occupation		
Housewife	35	47.9
Worker	17	23.3
Businesswoman	9	12.3
Student	12	16.4
Living Place		
Urban	71	97.3
Rural	2	2.7
Marital status		
Married	65	89
Unmarried	8	11

Household Income (TK)		
<50,000	6	8.2
50,000-1,50,000	16	21.9
>1,50,000	51	69.9

Table 2 outlines what is known about HPV and cervical cancer and the HPV vaccine of these women taken from the survey. Among the individuals involved, 97.3% had knowledge about cervical cancer whereas 2.7% had not even heard about cervical cancer before. Additionally, 35.6% of participants and 64.4% of participants, respectively, were informed about the existence of the HPV, or human papillomavirus, a virus that can result in cervical cancer. 5.5% of participants were unaware that there is a vaccination to prevent cervical cancer, compared to 94.5% of individuals who had heard of it.

Nonetheless, several studies have indicated that people in underdeveloped nations lack confidence when discussing sex, issues with screening, and cancer education. So, this elucidates the reason behind the late detection of cervical cancer in Bangladesh. Even their relatives are embarrassed for Bangladeshi women to discuss vaginal issues with physicians. Westerners, on the other hand, tend to be more accepting of other cultures, which eventually aids in the early detection of cervical cancer (Amin, 2023).

Table 2: The knowledge of cervical cancer, HPV, and HPV vaccine.

No	Features	The Number of Participants, N=73	Percentage (%)
Heard about cervical cancer			
1	Yes	71	97.3
2	No	2	2.7

No	Features	The Number of Participants, N=73	Percentage (%)
Heard about the HPV virus (Human Papillomavirus) that can cause cervical cancer			
1	Yes	47	64.4
2	No	26	35.6
Heard that there is a vaccine to prevent cervical cancer			
1	Yes	69	94.5
2	No	4	5.5

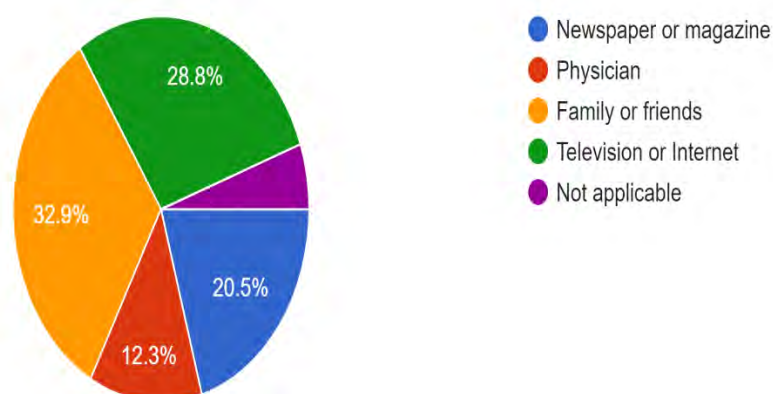


Figure 1: Sources of learning about cervical cancer

Figure 1 shows that; most of the participants were given details about cervical cancer through personal sources such as family and friends (32.9%), and only 12.3% of the participants received information from the physicians. Additionally, 20.5% of participants got their knowledge from newspapers or magazines, and 28.8% of participants got their information from the Internet.

In a different study carried out in Bangladeshi rural regions, it was discovered that discussion sessions (20.4%), microphone announcements (21.4%), and cable line commercials (25.5%) were the most successful in raising awareness of VIA as a CC screening technique and the most successful strategy for raising broad awareness was described as television (37.4%). On the other hand, 69% of North Koreans' primary knowledge sources on the CC were from medical professionals (A. Sultana et al., 2023).

Table 3: The attitude of the participants toward HPV vaccination.

Features	Participants Number, N=73	Percentage (%)
Have taken the HPV vaccine		
Yes	52	71.2
No	21	28.8
The reason behind taking the HPV vaccine		
Physician recommendation	19	26.4
Through a friend or family member	2	2.8
Not applicable	51	70.8
The rationale behind declining the HPV vaccination		
Scared of vaccine	13	17.8
Did not know that much about the vaccine	31	42.5
Did not believe that the vaccine is safe	7	9.6
Not applicable	22	30.1

Interested to take this vaccine		
Yes	23	31.5
No	50	68.5
When individuals desire to get this vaccination		
As soon as possible	8	11
Within next year	1	1.4
Not sure about the time	14	19.2
Not applicable	50	68.5
The reason behind not being interested in taking this vaccine		
The vaccine was very new	17	23.3
The vaccine was very costly	0	0
Did not believe that the vaccine was safe	12	16.4
Not applicable	44	60.3

Table 3 describes, the majority of participants had taken the HPV vaccine (71.2%) and 28.8% of the participants did not take the HPV vaccine. In addition, 2.8% of participants received the vaccination from a friend or family member, and 26.4% of individuals did so on the advice of their doctor. Furthermore, 17.8% of participants feared the vaccination, and 9.6% of people did not think it was safe. In contrast, 42.5% of participants did not know much about the vaccine. Conversely, however, 16.4% of participants were unwilling to have the vaccination because they did not think it was safe, and 23.3% of people were reluctant to receive the vaccine since it was relatively new.

According to several studies, educated women had higher levels of self-efficacy and accessibility to healthcare facilities. Nonetheless, several studies have indicated that people in underdeveloped nations are not comfortable discussing issues related to sex, screening, or cancer education which elucidates the reason behind the late detection of cervical cancer in Bangladesh. Moreover, even their relatives are embarrassed for Bangladeshi women to discuss vaginal issues with physicians, and Westerners, on the other hand, tend to be more accepting of others, which eventually aids in the early detection of cervical cancer (Amin, 2023).

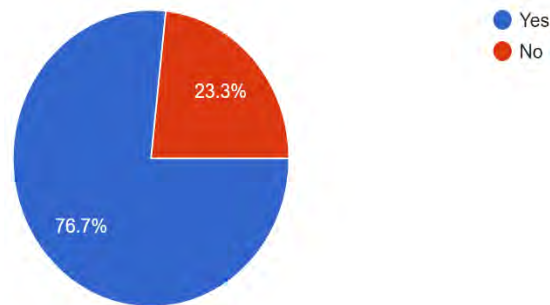


Figure 2: The participants who had an adolescent daughter

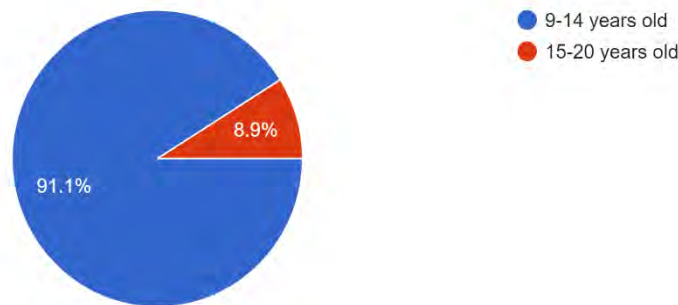


Figure 3: The ages of daughters of the participants

Figure 2 shows that of the 73 individuals involved in this study, 76.7% had an adolescent daughter, whereas 23.3% did not have any teenage daughters. Furthermore, Figure 3 demonstrates that of the 73 participants in this survey, 91.9% of the participants' daughters

were between the age of 9 and 14 and 8.9% of the age of daughters of the participants were between the ages of 15 and 20.

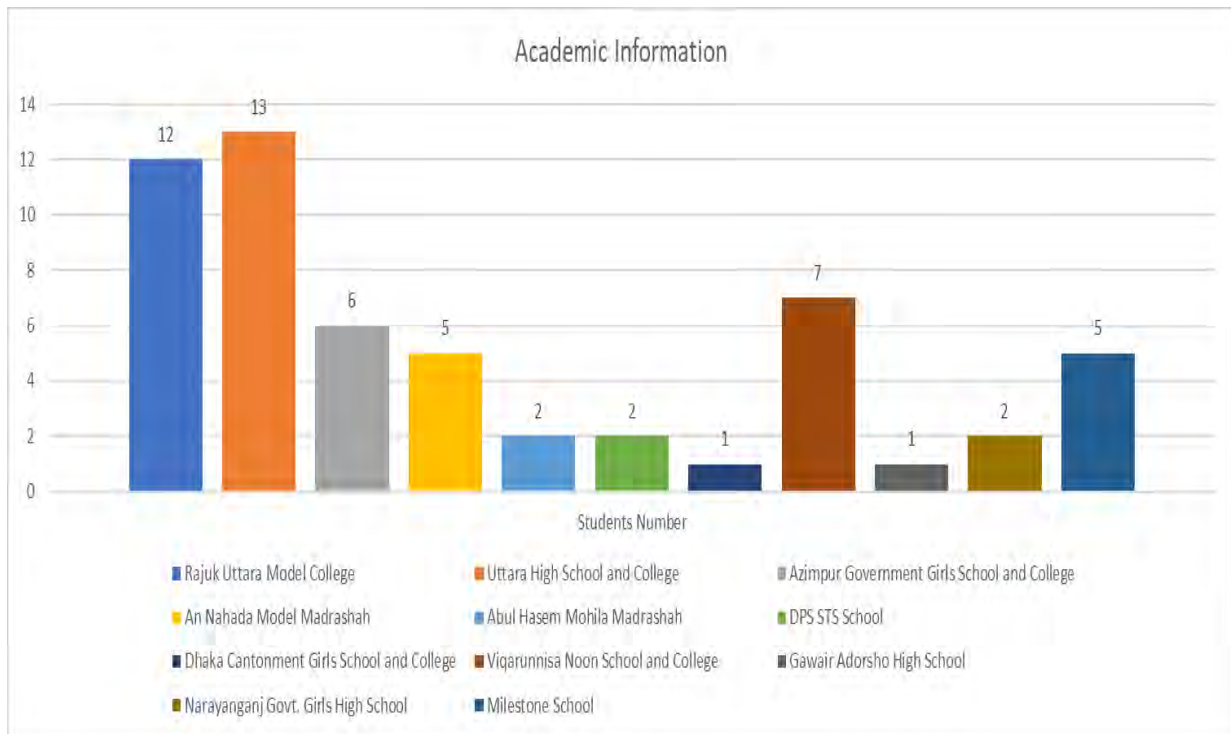


Figure 4: The name of Educational Institutions of daughters of participants.

Figure 4 shows the name of Educational Institutions of daughters of participants and the number of each School, College and Madrasah.

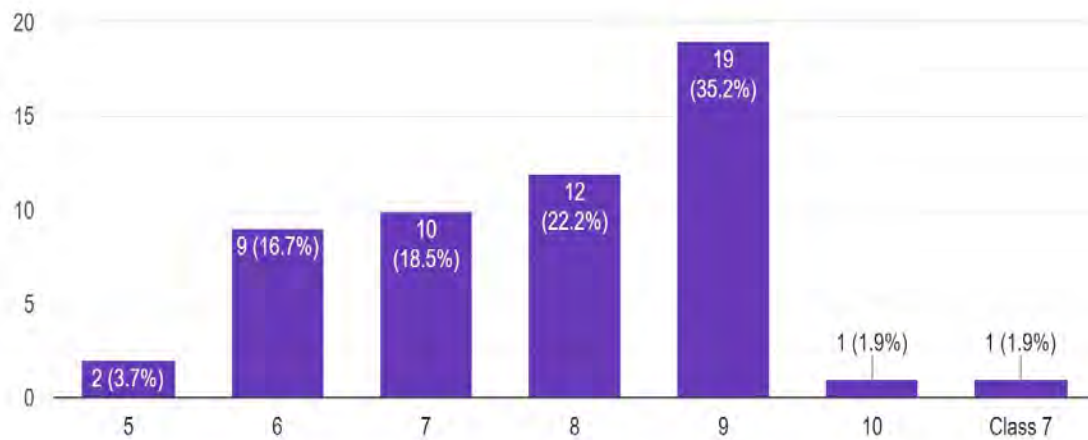


Figure 5: The reading classes of daughters of the participants

Here, figure 5 shows the reading classes of daughters of the participants.

Table 4: Adolescent mother's attitude towards vaccination of their daughters

Features	Participants Number	Percentage (%)
The government had offered the cervical cancer vaccine through their daughter's school		
Yes	100	100
No	0	0
Their daughter had received the cervical cancer vaccine		
Yes	46	80.7
No	8	14
Not applicable	3	5.3
They agreed to vaccinate their daughter		
Yes	49	86
No	7	12.3
Not applicable	1	1
Reasons for vaccinating their daughter		
Physician recommendation	0	0
To protect their daughter from HPV	3	5.4
Did not want to disclose	0	0
Not applicable	53	94.6
Reasons for not vaccinating their daughter		

They did not have enough information available to decide	0	0
Their daughter was too young to be vaccinated against HPV	1	1.8
The vaccine was very new	1	1.8
They did not believe that the vaccine is safe	3	5.4
Concerned about side effects	2	3.6
Not applicable	49	87.5

Table 4 describes the mindset of adolescent mothers toward their girls' immunization. In this instance, all of the participant's girls were allowed to acquire the cervical cancer vaccination via their daughter's school, and 80.7% of the participant's daughters had already received it, while 14% had not.

However, a Thai study on mothers' attitudes, acceptance, and knowledge regarding the HPV papillomavirus vaccine for their female children found that those with advanced learning had superior basic knowledge of HPV (Mabeya et al., 2021). Additionally, these findings align with this survey, which showed that respondents with post-primary education had better knowledge of HPV. Mothers of teenage girls are most motivated to get an HPV vaccine because they fear developing cervical cancer and because they have personal experience with the disease (Mabeya et al., 2021). In order to make an informed decision regarding their daughters' immunization, mothers must be aware of the advantages of the HPV vaccine.

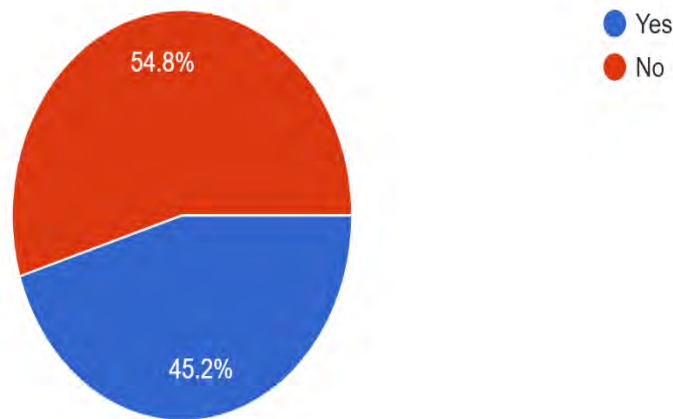


Figure 6: Understanding of the respondents regarding the cost of the cervical cancer vaccine

Figure 6 shows the respondents' understanding of the vaccination price against cervical cancer. Of those involved, 45.2% were aware of the price of the cervical cancer vaccine as well as 54.8% of the individuals were not aware of the pricing.

An HPV immunization program's ability to be implemented successfully is greatly influenced by the vaccine's cost. Moreover, with its extended immunization program (EPI), Bangladesh has made amazing progress, covering almost 90% of the population for free against eleven illnesses. Furthermore, through the national HPV vaccination program, Australia has provided the HPV vaccine at no cost to all school-age children (ages 12 to 13) since 2007 (A. Sultana et al., 2023).

Table 5: Vaccination awareness to avoid cervical cancer

Features	Participants Number	Percentage (%)
Recommended the cervical cancer vaccine to others		
Yes	63	86.3
No	10	13.7

The best way to deliver information to others		
News media	15	20.8
School-based program	10	13.9
Health center-based program	38	52.8
Not applicable	9	12.5
More women need to be aware of cervical cancer vaccination		
Yes	100	100
No	0	0

It can be seen from Table 5 that 86.3 percent of participants said they would suggest the cervical cancer vaccination to others, while 13.7% said they would not. In this case, 52.8% of participants believed that a program located in a health facility was the most effective approach to disseminating knowledge to others, whereas 20.8% 53.8% of participants said that the media was the most effective means of disseminating knowledge to others, while 13.9% believed that school-based programs were the most effective means of doing so. However, all participants (100%) said that more women should know about the vaccination against cervical cancer.

The efficacy of the cervical cancer prevention program now depends on the parents' knowledge, perspective, desire, and acceptance among daughters receiving immunization against HPV (Mabeya et al., 2021). The government agencies in charge of regular vaccinations must seize upon mothers' optimistic outlook to boost uptake by including the HPV vaccine in the adolescent's regular immunization schedule.

3.2 Findings from the Study

The majority of respondents had a favorable view toward the use of the cervical cancer vaccine to avoid cervical cancer. This study demonstrated a substantial relationship between mothers' and daughters' acceptance of HPV vaccination and their comprehension of the function of the vaccine in averting cancer. However, vaccination choices made by mothers for their daughters are predicted by their acknowledgment of the HPV vaccination as a vaccination to prevent cancer.

3.3 Drawbacks

Since the study relies on questionnaires, response bias may exist. Moreover, it is important to be cautious when extrapolating the results to the full population of the nation because the majority of participants in this study were from metropolitan regions. Furthermore, there's a chance that the study's questionnaire did not address every facet of cervical cancer, HPV, and how to avoid it, which may have limited how much was learned from it. On the other hand, the majority of respondents to this study reside in cities. Therefore, more fresh perspectives regarding cervical cancer vaccine would have surfaced if this poll had been conducted at a greater rate in rural regions.

Chapter 4

Conclusion

The purpose of this study was to find out how aware Bangladeshi women and adolescent girls are of cervical cancer vaccination. Moreover, the knowledge, attitude, desire, and behavior of adolescent females regarding cervical cancer vaccination were revealed by this study. From a parental standpoint, the study also demonstrated the elements that influence adolescent girls' mothers' intentions and practices of vaccinating them against HPV.

From this survey, we have found that many of the participants have not given the vaccine and most of them are not willing to give it. But most of the participants' daughters had given the vaccine from their schools which was arranged by the Bangladesh Government and the mothers of those who had not given it wished that they would give it to their daughters to prevent cervical cancer. In October 2023, the government offered the vaccine free of cost through schools to girls studying in class 5 to class 9 or those who are adolescents aged 10 to 14 years and most of the girls took it, but those aged below 10 and above 14 and those studying below 5 and studying above class 9 were deprived of this opportunity.

In my opinion, if the government can do such a free program of vaccination through schools every year, then it will be possible to eliminate the deadly disease called cervical cancer from Bangladesh.

4.1 Future Perspectives

The survey can be done in a larger population involving individuals from both rural and urban areas, which can result in a valid conclusion about the acceptance of cervical cancer vaccination. Additionally, an investigation can be done to find out the exact reasons for not taking the vaccine. Hence finding feasible solutions for these reasons can contribute to spreading awareness on cervical cancer vaccination.

Besides, this survey can be done on a larger scale to build awareness about this vaccination among not only women but also men so that they can alert their wives, mothers, and sisters about this vaccination.

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Appendix I.

<https://forms.gle/pKGbUqNVA93yXUWJ9>