

**A Qualitative Exploration of Motivations and Barriers in the Decision-Making
Regarding the Uptake of HPV Vaccine Among Caregivers of Adolescent Girls in Dhaka
Korail Slums**

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ABSTRACT

Introduction: Cervical cancer, primarily caused by the human papillomavirus (HPV), remains a health concern globally, particularly in low- and middle-income countries like Bangladesh. HPV vaccination is a proven preventive measure, yet the implementation of HPV vaccination in urban slums such as Dhaka's Korail slum is challenging. This study aims to explore the motivations and barriers influencing caregivers' decision-making regarding HPV vaccination for their adolescent daughters aged 10–14 years.

Method: The study population is caregivers of adolescent girls aged 10-14 years living in Korail slum Dhaka, Bangladesh. A qualitative study was conducted by using the Behavioral and Social Drivers (BeSD) framework developed by WHO to guide data collection and analysis. In-depth interviews were carried out with eight caregivers, selected through purposive and snowball sampling methods. Data were analyzed thematically to identify interactional factors shaping vaccination decisions.

Findings: Caregivers demonstrated low awareness of cervical cancer and HPV vaccination. Motivators for vaccination included trust in school authorities, influence from family and peers, and perceived health benefits for their daughters. Barriers included misinformation, concerns about vaccine side effects, inadequate communication from implementers, and cultural perceptions. Mothers were often the primary decision-makers, with HPV vaccination viewed as a “feminine matter”.

Conclusion: The research highlights the urgency for targeted communication strategies to improve caregivers' understanding of HPV vaccination. Engaging trusted figures such as schoolteachers and community health workers is important to address misconceptions and build trust with caregivers. Specific interventions should focus on enhancing the understanding of HPV vaccination and cervical cancer in urban slum communities, to increase HPV vaccination uptake and prevent cervical cancer in future generations.

1. INTRODUCTION

1.1. BACKGROUND AND JUSTIFICATION

Cervical cancer (CC) appears in the cells of the cervix, which is the lower section of the uterus that connects to the vagina (Fritz et al., 2000). Cervical cancer is caused by the human papillomavirus (HPV), a sexually transmitted virus and the most common viral infection affecting the reproductive system. Globally, CC is the fourth most prevalent cancer in women with 90 percent of cervical cancer deaths occurring in low and middle-income country (Perehudoff et al., 2020). Current evidence shows that the Southeast Asia and South-Central Asia regions experienced the highest incidence and mortality rates for CC (Arbyn et al., 2020). In Bangladesh, CC holds the second most prevalent cancer among women with over 12,000 new cases, and more than 6000 deaths reported from the disease annually. Cervical cancer caused a health burden in Bangladesh because of the high prevalence of risk factors like marriage at a young age, having multiple pregnancies, early initiation of sexual activity, and low socio-economic conditions (Directorate General of Health Services, 2017).

One of the most effective ways to prevent CC is by HPV vaccination (Kim & Kim, 2024). Globally, HPV vaccines are estimated to protect against the types of HPV associated with 90% of CC and 80-95% of other related cancers. The Advisory Committee on Immunization Practices (ACIP) recommends HPV vaccination at 11 or 12 years (Zhai & Tumban, 2016). In Bangladesh, the Government of Bangladesh (GoB) piloted the HPV vaccination program in 2016 in the Gazipur district and continued implementation for two years for girls of grade 5 at school and in the community for those aged 10-12 years who are not attending schools (World Health Organization, 2016). The program was successful, as coverage reached 94% of the target population, and no serious Adverse Events Following Immunization (AEFIs) were reported (GAVI, 2016).

In 2023, the GoB launched the HPV vaccination campaign in Dhaka. This campaign targeted over 10 million girls in grades 5 to 9, as well as those who didn't attend school aged 10 to 14 (UNICEF, 2023). However, as of 2024, the data on HPV vaccination coverage is not available yet. The knowledge of the HPV vaccine is also very low within the general population of Bangladesh. A nationwide study on HPV vaccine awareness among parents of eligible daughters in Bangladesh found only 22.32% of parents were aware of the HPV vaccine (Eva et al., 2024). The challenges of delivering HPV vaccination in Dhaka are various, including the presence of urban slums. For example, the coverage of routine immunization was 84% at the national level and 83% in Dhaka, and the coverage in the slums of Dhaka was only 69%

(Hayford et al., 2014). Another example is the EPI coverage survey, which showed only around 78% of children in Dhaka's slums received full routine immunization, compared to 82.3% at the national level in 2016 (Directorate General of Health Services, 2016). Even though children living in urban areas were more likely to get fully immunized compared to children in rural areas, the situation in slums was worse within urban areas (Chowdhury et al., 2003).

Several studies showed that the lower vaccination coverage in Dhaka slums is due to a lack of awareness and fear about vaccine side effects among caregivers (Rahman et al., 2012). However, until this study was conducted, no studies specifically explored the knowledge and awareness of HPV vaccination within Dhaka's urban slums. Existing research shows that HPV vaccination awareness levels across various population groups in Bangladesh are very low. A population-based study on cervical cancer and HPV vaccine knowledge among Bangladeshi women found that only 20% of urban women and one in twenty rural women were aware of a vaccine that can prevent cervical cancer. Despite the study showing a low level of knowledge, the intention to accept HPV vaccination for their daughters was high, with 91.8% of urban women and 99.2% of rural women showing willingness (Islam et al., 2018). These studies show a paradoxical situation while adult women show low awareness of HPV and its vaccine, there is a high willingness among them to vaccinate their daughters. On the ethical side, a study on ethical issues related to HPV vaccination programs in Bangladesh also found that many caregivers were uninformed of the vaccine their daughters or wards received during the HPV vaccination program in 2016 (Salwa & Abdullah Al-Munim, 2018). Considering that children or adolescents in the age group 6 to 17 cannot independently consent to vaccination, therefore, parental or legal guardian consent is required (WHO, 2014).

To improve the coverage of HPV vaccination and knowledge of HPV vaccination, particularly in the urban slums of Dhaka, it is crucial to understand the reasons why uptake is low or stagnating. As the HPV vaccination in Dhaka targets girls aged 10 – 14 years, it is important to understand how caregivers' motivations and barriers affect their HPV vaccine acceptance. Several LMICs have already conducted studies on the decision-making processes of caregivers regarding HPV vaccination. A study on Malawian caregivers' experiences with HPV vaccination for their daughters found that mothers saw school-based vaccination as efficient, though some caregivers felt disappointment over the lack of involvement during the delivery of vaccination shots (Moucheraud et al., 2023). This condition is similar to what happened in Bangladesh where the HPV vaccination cards were not given to the girls, instead, they were kept by the school authorities until the girl received two doses of the vaccine. This situation

puts parents or guardians in a blind situation and only dependent on school authorities for the health and well-being of their daughters (Salwa & Abdullah Al-Munim, 2018). In Bangladesh, myths and societal taboos about the HPV vaccine also remain found in schools. Misconceptions, such as the belief that the vaccine is ineffective after age 12 and fears of side effects like infertility, create hesitation among caregivers and make them fear vaccinating their daughters (Fariya, 2024).

This study is taking place at Korail slum which is the single largest slum area in Dhaka with more than 100,100 people living there. Korail slum is also known as an old and large slum settlement in Dhaka city. Korail slum itself is located in parts of Banani and Gulshan covering 19 and 20 wards of Dhaka City Corporation. A total population of 86,000 – 115,000 people currently lives in Korail slum. People who live in Korail slum mainly serve the surrounding area of Dhaka city for many purposes as maids, drivers, caretakers, garment workers, and helpers in retail stores. However, most of the people who lived in the Korail slum were rickshaw pullers who did not have any education or formal training. About half of the population is illiterate and about 26% of the population never attended school. The average household size is about five to six members. People who live in the Korail slum also have limited access to the city's healthcare. Most of the population used government hospitals and healthcare services operated by NGOs. On the education facility, no government primary school is found in Korail slum. All high schools and primary high schools are run by NGOs and privates. People in the Korail slum mostly live in a temporary habitat due to low-income level and lack of a supporting system. People in Korail mostly live on vacant private or government land and they need to pay higher amounts of money for house rent (Ahmed Sinthia, 2020).

To understand a wide range of drivers' vaccination, this study is using the WHO framework for Behavioural and Social Drivers (BeSD) of Vaccination. The BeSD vaccination framework explores four domains of behavioral and social drivers of vaccination that include thinking and feeling, social processes, motivation, and practical issues that affect vaccination uptake. BeSD framework is also developed to have an in-depth understanding of the experiences, perspectives, and attitudes of caregivers of vaccine-eligible children. The guides can be used to understand broader influences, such as different levels of literacy, political views, and socioeconomic status that differ in the context of urban slums (WHO, 2022). This study aims to explore caregivers' motivating factors and barriers in their decision-making of taking or not taking HPV vaccination for their daughters. This study aims to fill the gap in HPV vaccination

implementation by understanding the motivations and barriers from the perspective of caregivers in Dhaka's urban slums. By exploring the motivation and barriers influencing their decision-making processes, this research can inform the implementor of HPV vaccination on the communication strategies to increase the coverage of HPV vaccination. This study utilizes the BeSD (behavioral and social drivers) framework as the theoretical framework to see interlinked factors that influence caregivers' decision to take HPV vaccination for their daughters. The framework has four domains of behavioral and social drivers towards vaccination: thinking and feeling, social processes, motivation, and practical issues (WHO, 2022). The findings can provide input for healthcare providers, policymakers, school authorities, and NGOs to implement an effective HPV vaccination program that looks at the different challenges faced by communities living in Dhaka slums.

1.2. RESEARCH QUESTIONS

1.2.1. Primary Research Question

What are the motivating and challenging factors that influence caregivers' decision-making in Korail slum Dhaka regarding HPV vaccination for their adolescent daughters?

1.2.2. Secondary Research Questions

- What are the caregivers' knowledge and perceptions regarding the HPV vaccine for their eligible daughters in Korail slum, Dhaka?
- What are caregivers' attitudes toward school-based or community-based HPV vaccination programs?
- What factors motivate caregivers in Korail slum Dhaka towards HPV vaccination for their daughters?
- What barriers influence caregivers' decision about HPV vaccination?

1.3. OBJECTIVES

1.3.1. Primary Objective

To explore the motivations and barriers that influence caregivers in Korail slum Dhaka in their decision-making process regarding HPV vaccination for their adolescent daughters.

1.3.2. Secondary Objectives

- To explore factors that motivate caregivers in Korail slum to consider HPV vaccination for their daughters
- To identify barriers that impact caregivers' decision to vaccinate against HPV

- To explore how caregivers interpret and understand the information they receive about HPV vaccination
- To explore caregiver's attitudes toward the implementation of school-based and community-based HPV vaccination programs

2. METHOD

2.1. STUDY DESIGN

This research has a qualitative design that aims to understand how behavioral and social drivers influence caregivers' decisions on HPV vaccination for their daughters in Korail slum. Qualitative research allows in-depth exploration of caregivers' perspectives on their motivations, barriers, and individual experiences related to the implementation of HPV vaccination for eligible adolescent girls.

2.2. STUDY SETTING

The study was conducted in the Korail slum in Dhaka, Bangladesh, following the implementation of the HPV vaccination by the GoB starting in November 2024. The overall study was conducted between 30 October 2024 and 15 December 2024.

2.3. STUDY POPULATION

The study population is caregivers of adolescent girls aged 10-14 years living in Korail slum Dhaka, Bangladesh. Inclusion criteria were (1) caregivers (parent or primary guardian) who have daughters aged 10-14 who are eligible to get HPV vaccination; (2) reside in Korail slum Dhaka during the implementation period of HPV vaccination in 2023-2024; and (3) willing to participate in a one-on-one interview and able to provide signed informed consent. Individuals were excluded if they were not the parent or primary guardian and were unable to provide consent.

2.4. SAMPLE SIZE AND SAMPLING

This study used purposive sampling to enroll a convenience sample of caregivers who have daughters aged 10-14. Purposive sampling was selected to ensure a better matching of the sample with the aims and objectives of this research. Convenience sampling was later chosen for the researcher to reach the readily available sample and have access to it. The researcher utilized the list of caregivers who have eligible daughters for HPV vaccination from the identified school authorities in Korail slum. Identified individuals who met the eligibility of the study were invited to be study participants. The researcher also used the snowball sampling approach to reach participants who haven't vaccinated their daughters.

Data saturation or theoretical saturation is the most important in determining sample size for qualitative research. Data saturation refers to the stage at which data collection found no new characteristics or insights regarding the developing theory (Bryant & Charmaz, 2010). A systematic review of empirical views of sample sizes for saturation in qualitative research found that qualitative studies can achieve saturation with relatively small sample sizes, around 6-17 interviews. In this research, the researcher conducted in-depth interviews with a sample size of eight caregivers. This sample size is chosen within the recommended sample size to reach data saturation.

2.5. TOOL DEVELOPMENT

The researcher used an interview guide as the primary data collection tool to explore caregivers' perspectives on their motivations, experiences, and barriers to HPV vaccination for their daughters. The tool was developed based on the BeSD framework established by WHO. The tool explored how caregivers' thinking and feeling, social processes, motivation, and practical issues regarding HPV vaccination affect their intention to get the HPV vaccine for their daughters.

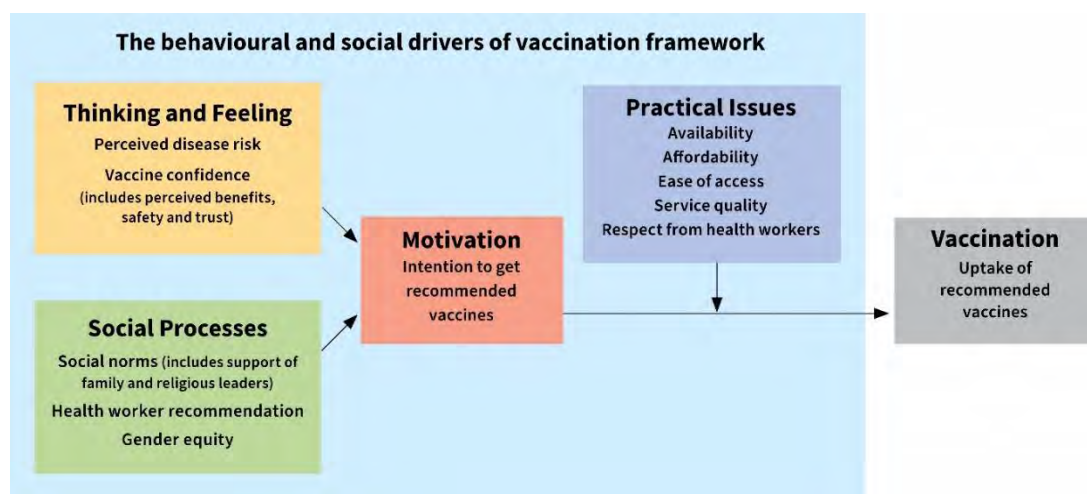


Figure 1. The BESD Framework

The interview guide included open-ended questions to get in-depth responses. Specific probes for each question were also developed to be contextually relevant to the Korail slum population. Additionally, socio-demographic questions were included to capture essential background information on the participants. The guide was pre-tested with one caregiver from the Korail slum to ensure relevance and appropriateness questions. The interview guideline was developed in English language then translated into Bengali by a Bengali-native speaker.

2.6. DATA COLLECTION

The researcher with one data enumerator with training in conducting qualitative interviews conducted one-on-one or face-to-face in-depth interviews (IDIs) with eight eligible participants through semi-structured interview guidelines to ensure that consistent topics were covered with all participants. In addition, interviewers also asked follow-up questions and specific probes to clarify responses and obtain additional relevant information based on what participants shared. The interview guide also collected participant's socio-demographic information. The interview is audio-recorded once written consent is gained from the participants. The data collections were conducted in a convenient place for participants (home and workplace) to ensure a convenient place for discussion between participants and researchers.

2.7. DATA ANALYSIS

All audio recordings were translated from the Bengali language to the English language by a native Bengali speaker after 4 days of each interview. The translated text was also checked by the researchers of this study who are native Bengali speaking. The transcription was read several times to gain a general understanding. The data were analyzed manually using thematic analysis using Microsoft Word 365. This approach combined deductive and inductive methods to develop a comprehensive set of themes. Deductive analysis was applied first by using a priori themes based on the conceptual framework. Alongside, the inductive approach will also be applied to allow flexibility for new themes to emerge from the data. To ensure consistency, a codebook to guide the coding process was developed for the thematic analysis process. A data matrix was created by using Microsoft Excel 365 to analyze and compare themes across cases. Descriptive statistics and frequencies were calculated for data collected in the socio-demographic survey by using Microsoft Excel 365.

2.8. ETHICAL CONSIDERATION

The study got approval from the James P. Grant School of Public Health, BRAC University's Institutional Review Board (IRB) on 20 November 2024 under IRB protocol number MPH-2024-002. Verbal consent and informed written were obtained from all participants involved in the study. The researcher and data collector ensured that all participants knew their involvement was completely voluntary, and respondents were informed of their right to withdraw from the study at any time without facing any

consequences. All the data collected are anonymous and confidential by using unique identifiers instead of names.

3. FINDINGS

3.1. SOCIO-DEMOGRAPHIC CHARACTERISTICS

In total, eight caregivers were recruited as the study participants, of which five had their daughters vaccinated with the HPV vaccine. The remaining did not have their daughter vaccinated. Among the caregivers, five were mothers and three were fathers. An overview of the characteristics of the participants is presented in Table 1. The average age was 35 years old, with most falling between the range of 31 to 40 years. Most parents have been residing in Korail slum for more than 20 years. Only one participant has resided in Korail for less than five years. Five participants reported to be employed, and three participants were housewives.

Table 1. Characteristics of the participants ($N=8$)

Gender	Participants (N)
Female	5
Male	3
Age	Participants (N)
21-30	2
31-40	6
Period living in Korail slum	Participants (N)
1-5 years	1
5-20 years	3
>20 years	4
Working status	Participants (N)
Working	5
Not working	3
Number of families living in one house	Participants (N)
0-2	0
2-5	6
>5	2

3.2. THINKING AND FEELING

3.2.1. A matter of misfortune with unknown causes

Caregivers were asked if they ever heard about cervical cancer and what they knew in general. The majority of the respondents indicated that they do not know much about cervical cancer and attributed this disease to different causes:

“I don’t know about ovarian cancer. But I heard that some people get ovarian cancer. But I don’t know much about it. Cancer happens actually when someone is really misfortunate. You just see, it’s a huge problem when women experience continuous white discharge. Many women experience abortions and they go through never ending menstruation. When this menstruation does not stop, the problem begins at that time. Many of them get cancer or they get many other ovarian problems. So, when someone gets into a misfortune, they face this kind of fatal turn. Cancer happens when an individual’s luck is not in favour. Otherwise, many people get this kind of discharge and so many other things but nothing happens to them. And some get it at the very first time. Everything is Allah’s wish. So, the luck is above everything.” (IDI 3, mother of vaccinated daughter)

“No, Have no knowledge about it [cervical cancer]. I hear that nowadays many are suffering from it. No, we do not know why it [cervical cancer] happens. It [cervical cancer] can happen to Hindus too, It can happen to us, It can also happen to Christians too.” (IDI 2, mother of unvaccinated daughter)

In contrast, only one mother of a vaccinated daughter and one father of an unvaccinated daughter knew about cervical cancer and specifically mentioned its risk factors:

“Normally tumor [and] cancer occurs after marriage. Most of the time it occurs because of premature marriages. This [cervical cancer] does not happen in mature marriages. I have heard that [HPV vaccine] it’s given to prevent cervical cancer, tumor and other diseases of the uterus. We are uneducated people, we don’t know much about it. I just know what I have heard from others. Nowadays these diseases are common among these children when they get married, that’s why I thought we should give her.” (IDI 1, mother of vaccinated daughter)

3.2.2. Influence of social media

Most caregivers mentioned that they got their first information about HPV vaccination from television and Facebook, which helped them decide whether to go for the vaccine or not. For example, one said:

“I know a little [HPV vaccination] after watching it on TV, and my daughter's schoolteacher said this vaccine is good. I have heard this from the news, and my daughter's teachers also said it's good for her.” (IDI 1, mother of vaccinated daughter)

When we probed further one mother of an unvaccinated daughter, she mentioned that the information that she read on social media also influenced her to not take the vaccine for her daughter:

“But as said, she is just one person who said positive but the negative is all over Facebook. Now, where five people are saying something we will follow that. My thought if you say that everyone will go, we will also go for the vaccine. Yes, I have heard a lot of negative words about it.” (IDI 2, mother of unvaccinated daughter)

3.2.3. Perceived benefits free of cost

Five out of eight caregivers expressed that the free cost of getting HPV vaccination is not a reason why they need to take the vaccination. They are more consider the benefits and the risks rather than the free of cost:

“I think the free vaccination campaign is beneficial but the actual necessity of the vaccine hits much. They are [people more interested in free vaccination]. But sometimes, we had to buy valuable vaccines with cash as well. As the government is providing the vaccine, everyone should take it. People won't take the vaccine just because it is free. The vaccine should be beneficial for children. If the vaccine really works, price won't matter.” (IDI 7, father of unvaccinated daughter)

3.3. SOCIAL PROCESSES

3.3.1. Community influence

Two out of four caregivers who decided not to take HPV vaccination mentioned that others' negative experiences such as after-effects following immunization influenced their decision. All of this information is shared directly from mouth-to-mouth in the community:

“Yes I did [heard about HPV vaccination]. Heard that children get sick after vaccination (...) So, we always heard the negative side of it. Never heard anything positive. We said that we heard this [information about the effect of taking vaccination] and that regarding this vaccine, that it is harmful. So she [school teacher] said what she wanted to and we did what we wanted. We were scared and panicked, so we did not take it.” (IDI 2, mother of unvaccinated daughter)

However, social influence contributed to the uptake of vaccines as well. Caregivers of vaccinated daughters explained that they decided to take the HPV vaccine because others had convinced them to do so. Mutual sharing of the news and convincing each other played a significant role in increasing the uptake of the HPV vaccine:

“The madam from the school said that this vaccine has to be taken. So, they [school authorities] said, it helps from the ovarian problems. So, they said all the girls are taking it and it is good for the girls. Then I agreed.” (IDI 3, mother of vaccinated daughter)

3.3.2. Influence of school authorities and family members

School authorities and family members significantly influence caregivers’ decisions about HPV vaccination. Among the eight caregivers, six made their decision about vaccination based on the recommendation from school authorities and family members:

“For the first time, I heard it [HPV vaccination] from my family. I have a sister who was associated with an organization, and she told me we should give the vaccine. Normally, she works as a tailor, but she is related to some NGOs. [...] She also has a daughter...[...] She told us I have given this [HPV vaccine] to my daughter; it should be given. Normally, my sister and family told me that the school shows interest too, but then I thought class teachers are guardians too. If this wasn’t good, they wouldn’t have organized this. I trust them this much. They organized it so it would be good and others also gave it.” (IDI 8, father of vaccinated daughter)

Caregivers also stated that they allowed their daughter to get vaccinated because the instruction came from school authorities whom they trust:

“We can hold them [schoolteachers] accountable if something wrong happens as it was given by the school. Or we could not have the accountability if it was given by any roadside authority. Can we find them? They can’t flee away. And they can never do any harm to their students. Will they do it? They will only do good for their students. If it [HPV vaccination] was held at the roadside [health facility], anything could happen. There are different kinds of people around nowadays.” (IDI 3, mother of vaccinated daughter)

Trust in school authorities was also reflected in the preference of the school as a vaccination center. One caregiver of an unvaccinated daughter shared that vaccination in school is more trustworthy as schoolteachers are trusted people:

“The health clinics must visit the schools for vaccination, or else they can't identify whom to give the vaccine. Schools have a specific location to conduct the vaccination process. So, I find the school vaccination program preferable. I find the school vaccination program more trustworthy.” (IDI 7, father of unvaccinated daughter)

In contrast, two caregivers shared that they have daughters who school in the madrasa. They expressed that madrasa schools express skepticism toward vaccination as they see disease as act of Allah which is beyond human control. One caregiver expressed personal trust in the vaccination but shared that the madrasa schoolteachers do not share this trust:

“I can't say that [about cervical cancer], my daughter knows that. And if it was a school maybe they would believe, teachers of the madrasa don't believe these things usually. They don't believe these, they thought if Allah gave the illness people can't do anything. There are teachers who don't care/believe these” (IDI 5, mother of unvaccinated daughter)

3.3.3. Trust in healthcare facilities

Three out of four caregivers who haven't taken the HPV vaccination expressed that they prefer clinics over school for vaccination. They explained that if they take HPV vaccination at the clinics, they can discuss their concern directly with the doctors:

“I think it is better to be given at clinics. Because if it is provided by the clinics, guardians can talk to the attending doctors. So there won't be any fear left for the guardians. Doctors never want bad for their patients. They would never want any of their patients to die. They will provide better guidelines. This is my understanding. As I said, if you provide the vaccine through clinics, then we can learn better from the doctors. Let me tell you something. The head-master only learned about the science of teaching students. He doesn't know about the vaccines in depth. So it is better to be provided through clinics.” (IDI 6, father of unvaccinated daughter)

3.3.4. Influence of peers and friends

The daughters' peers and friends also influenced caregivers' decisions regarding HPV vaccination. One caregiver mentioned that seeing her daughter's friend already vaccinated encouraged a positive attitude toward the vaccination program:

“Yes, she told me to give my daughter, it is good for my daughter. Her school teacher asked to give it, and also her friends were having it too.” (IDI 1, mother of vaccinated daughter)

3.3.5. Feminine matter

All respondents reported that their daughters discussed the HPV vaccination first with their mothers. Two mothers of vaccinated daughters explained that the fathers were unaware that their daughters had got the HPV vaccine on the day of vaccination. Excluding the father from the discussion seemed to be linked to cervical cancer being a feminine matter:

“We didn’t say anything [to my husband] like we got vaccines or not. Then naturally the fever came. Then I said the fever has no reason. He doesn’t know about the vaccine. He said nothing. She got the vaccine, then she said she has pain in her hand. Then he asked what happened? She said she got a vaccine. Then he said, I forbade to take that. Then I said, it’s for better health, Everyone is taking it. So, where is the problem?” (IDI 3, mother of vaccinated daughter)

When probed further some fathers were convinced that because HPV vaccination is related to female health, it is more appropriate to discuss these things with their mothers:

“Maybe they are too shy to talk about it [HPV vaccination]. Maybe because it is a female matter and so they felt too shy to express it to me.” (IDI 7, father of unvaccinated daughter)

The daughters’ preference to discuss HPV vaccination with their mothers also influenced who made the family’s decision regarding vaccination. Six out of eight caregivers mentioned that the mother was the primary decision-maker in choosing whether to vaccinate. Additionally, all vaccinated daughters received the vaccination with their mother’s approval:

“The school informed the students and asked the students to inform the guardians. Then, my daughter shared it with me. But his father forbade to take the vaccine. Her father does not like this kind of injection. The newborns are given vaccines. Her father doesn’t even like the injection too. That’s why he said no. So, I went to the school to learn more about it. I said to them that my daughter has said it to me, so, what’s the matter. Then they said it’s about ovarian problems and many other problems. Then I said, if everyone else is taking it then give it to [my daughter] as

well. If no one takes it, don't give it to Her as well. Her father may forbade but I told you to give it." (IDI 3, mother of vaccinated daughter)

3.4. PRACTICAL ISSUES

3.4.1. Quality of service

Perceptions regarding quality of service also have a role in shaping caregivers' attitudes toward HPV vaccination. Concerns about the quality of free vaccines and the belief that paid services are of higher quality were frequently mentioned:

"There is adulteration everywhere. I told you if you guys charge half the money for the vaccine, it will be good. We feel it will be good when we pay for something. Yes [there will be a place for fear of free vaccine], there are people who suffer from allergy after getting corona vaccine." (IDI 5, mother of unvaccinated daughter)

3.4.2. Affordability of the vaccine

One caregiver shared that the affordability of the HPV vaccine became one of the reasons why they decided to vaccinate their daughter. One caregiver expressed that the financial barrier to accessing the vaccine was a key enabler for their decision to take the vaccination:

"They [school authorities] also told us it's free, we can't afford to buy one that's why we gave [the vaccine to the daughter] it." (IDI 1, mother of vaccinated daughter)

3.4.3. Lack of communication about HPV vaccination

All caregivers expressed that the implementers from school, community healthcare, and healthcare workers didn't provide enough information about HPV vaccination. All caregivers also mentioned that the information about HPV vaccination was shared first with their daughter, and then the daughter communicated with the caregivers:

"No, they informed my daughter about the vaccine and asked her to bring her birth certificate. And then I gave her a copy of her birth certificate. I didn't hear anything from the school, my daughter told about the vaccination." (IDI 1, mother of vaccinated daughter)

Some caregivers of the vaccinated daughter further explained that they were unaware their daughter had received the vaccine until their daughter informed them:

“Before giving the vaccine [heard about someone got incident after received the vaccine]. Then she [my daughter] went to school. They gave her the vaccine. Later, she said they gave it and now it's up to Allah. The school teachers took her. They gave it. No, the school didn't call or say anything. I don't know if they told the others. I don't know whether it's better [to take the vaccine] at hospitals or not. They [school authorities] didn't tell me where to give it. Later, the school called and said they had already given the vaccine. No, she went to school, and there they gave the vaccine. The teachers took her, gave the vaccine, and brought her back. She told me after coming home.” (IDI 4, mother of vaccinated daughter)

When probed further some caregivers of unvaccinated daughters explained if the implementer explained more to them, they would have considered accepting the vaccination:

“If they [school authorities] don't talk in detail with us about the vaccine, we won't let our children take the vaccine. If they had told us, “the science behind the vaccination, your daughter wouldn't face any problem; we are providing the vaccine for this reason”, then we may have permitted our daughter. They didn't share that much. They only told us that they wanted to give our child a vaccine. And so her mother forbade them. They only told us that the school would provide a vaccine. They didn't say which vaccine or what for. Now, we can't give our daughter a vaccine without knowing anything about it. They should have shared in detail about the side effects of the injections. There were many other vaccines before; we took them and gave them to our children as well. But this time it was not the same vaccines. It is something new this time.” (IDI 6, father of unvaccinated daughter)

3.5. MOTIVATION

3.5.1. Desire for good health

Caregivers who approved the HPV vaccination for their daughters expressed that they did so in the hope of protecting their health:

“I don't want my daughter to suffer from these after her marriage. So I think it [HPV vaccination] should be given. Nowadays children have a lot of diseases.” (IDI 1, mother of vaccinated daughter)

Three out of four caregivers who haven't vaccinated their daughters explained that they would take the HPV vaccine in the future if it would protect their daughter.

"I don't understand much about this [HPV vaccination], as I said I am illiterate I don't understand. If they say it's for my children's betterment, then I will give it [HPV vaccination]." (IDI 5, mother of unvaccinated daughter)

4. DISCUSSIONS

By using the BESD framework, the current study identified several factors that affect caregivers' decision-making process about HPV vaccine uptake for their daughters. Low knowledge of cervical cancer and HPV vaccination, influence from trusted individuals at school, close families, and among peers, as well as perceived health benefits for their daughters, play a key role in decision-making. Barriers included misinformation, fears about vaccine side effects, lack of communication from program implementers, and cultural beliefs. Mothers often acted as the primary decision-makers as HPV vaccination was looked at as a "feminine issue".

The findings suggest that most caregivers had an inadequate understanding of cervical cancer and HPV vaccination. Only a few caregivers reported females being at risk of HPV-associated cancer and its risk factors. These findings are concerning given that cervical cancer is the second most prevalent cancer among women in Bangladesh (Directorate General of Health Services, 2017). Although knowledge about cervical cancer and HPV vaccination was generally limited, the findings indicate that acceptance of HPV vaccination is still high. This finding aligns with previous research in Bangladesh, which reported low awareness of HPV vaccination despite a high willingness to vaccinate daughters when informed (Islam et al., 2018), and also Nepal (Johnson et al., 2014). A study in India found a wide gap in the awareness of slum dwellers and the urban community with more than 80% of study participants being aware of the term and the symptoms of the disease (Puri et al., 2009). Despite the limited information about the HPV vaccine in the slums of Bangladesh, the contribution of the current research is that this acceptance is primarily influenced by information from trusted individuals such as schoolteachers, family members, and healthcare workers.

In addition, the current research findings show that most caregivers reportedly didn't have enough information regarding the implementation of HPV vaccination from school authorities, community healthcare, and healthcare workers which may have influenced the

decision. All caregivers mentioned that the information on the implementation of HPV vaccination was first shared by their daughters rather than directly from the implementers or school authorities. Some caregivers also expressed that they weren't aware until their daughter got vaccinated. This finding is similar to the previous research on the awareness of caregivers during the Bangladesh HPV vaccination program in 2016 that found adolescent girls were vaccinated without their caregivers being informed first (Salwa & Abdullah Al-Munim, 2018). Similarly, in other low- and middle-income countries, such as Malawi, caregivers expressed disappointment over the lack of their involvement from school authorities during the implementation of the HPV vaccination program (Moucheraud et al., 2023). The lack of communication between implementers and caregivers is concerning given that most residents of the Korail slum lack adequate formal education (Ahmed Sinthia, 2020). Making health-related decisions requires comprehensive information accessible and aligned with an individual's needs as well as cultural and social background (McCormack et al., 2013). The current findings suggest the need for increased communication efforts targeted at parents of eligible daughters with messages on the HPV vaccination benefit and risk of cervical cancer. This is especially important as building rapport with parents or guardians can enhance the acceptance of HPV vaccination (Sussman et al., 2007).

Decisions to vaccinate primarily were influenced by trusted individuals such as school authorities, healthcare workers, and family members, according to the current research. This finding is aligned with Kenya which explored knowledge of the HPV vaccine and cervical cancer among schoolteachers who were found to play a key role in educating about HPV vaccination (Masika et al., 2015). Teachers with little knowledge of the HPV vaccine are less likely to accept the vaccine than those who know (Masika et al., 2015). It is also similar to the current research where respondents who have daughters' schools at madrasa schools expressed that the teacher believes that humans don't have any control over the disease given by Allah, and they don't trust vaccination. However, these insights were the perspectives of caregivers only, as the study did not explore the perspective of schoolteachers.

The findings also suggest that close personal influence plays a key role in shaping caregivers' decision-making regarding HPV vaccination. This finding is also similar to a study that found individuals in urban slums build their networks based on trust among people whilst living together nearby for a long time (Manzoor et al., 2022). Therefore,

health authorities should focus on the health literacy needed for HPV vaccination and orient the school authorities and healthcare workers who are involved in the implementation in urban slums. As schools are likely to be the chosen place for the delivery of HPV vaccination, the first step should be training teachers to act as HPV vaccine champions to educate the caregivers and their colleagues on the importance of HPV vaccination and cervical cancer. Additionally, the mobilization of community health workers is also important to disseminate information on HPV vaccination to the community as community health workers are coming from the community itself and people living in urban slums are building their trust based on the person who living nearby. As per the findings of the current research, all caregivers expressed a desire to protect the future health of their daughters. This motivation could be one of the ways implementers could encourage vaccine uptake by communicating HPV vaccination as a preventive measure to protect their daughter against HPV.

As with any research, there are limitations to the present study. The sample size was small, with only eight participants which may limit the representativeness and transferability of the findings to all caregivers in Korail slum or similar contexts. Participants were recruited from a single slum area in Dhaka, which might not capture the diversity of experiences across other urban settings. In addition, the use of snowball sampling may have led to the selection of caregivers who share similar experiences, motivations, and barriers to HPV vaccination. Some participants were also interviewed while doing their work as shopkeepers which could make the participants lose their focus on the questions that the researcher asked. Despite the use of semi-structured interview guides and training of interviewers, there is potential for interviewers' bias. The reliance on self-reported data could also lead to recall bias as participants might not fully recall their experiences. Additionally, future research should focus on understanding the long-term impacts of targeted communication strategies on HPV vaccination uptake. Future research could also explore the role of digital media in shaping public perceptions of HPV vaccination and develop interventions to counter hoax or misinformation.

5. CONCLUSION

This study found the interactional factors of awareness, social influence, communication, motivation, and practical issues in caregivers' decision-making about HPV vaccination. The barriers found in this study include limited knowledge of cervical cancer and HPV

vaccination and lack of communication from implementers to caregivers. These barriers not only affect caregivers to their acceptance of HPV vaccination but also prevent them from the opportunity to get health intervention. These barriers need to be addressed in a way that is appropriate to their culture and environment.

This study recommends a targeted communication campaign to address misconceptions and enhance knowledge of HPV vaccination and cervical cancer in the community. A collaborative communication campaign between school authorities, healthcare providers, and community leaders can further improve the acceptance of HPV vaccination among caregivers. Further research is also needed that evaluate the HPV vaccination program implementation at the community level to analyze the health impact and community acceptance of the program.

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ANNEX

Interview Guideline

Study Title: Exploring Caregivers' Motivations and Barriers in HPV Vaccine Acceptance to the Eligible Adolescent Girls in Dhaka Korail Slums: A Qualitative Study of Decision-Making Processes

Introduction

Question or Instruction	Probe
Assalamualaikum Wr. Wb / hello, I am (interviewer's name) from BRAC JPG School of Public Health, BRAC University. The interview will take around 30 minutes. The answers you give will be recorded and completely confidential. If you don't want to answer a question, just let me know. Would you be willing to take part in an interview with me? Would you allow me to record our conversation?	
Tell me a little about yourself and your family.	- Age: How old are you? - Marital Status: What is your current marital status? - Education Level: What is the highest level of education you have completed? - Occupation: What is your primary occupation or source of income? - Who lives in your household with you? - How old is your child/are your children? - Are your children up to date with their HPV vaccines?

Thinking and Feeling

Question or Instruction	Probe
Perceived disease risk and vaccine confidence	
What do you know about HPV vaccination and how it affects health?	- Probe 1: Do you think it's a good thing? Why? - Probe 2: Is there anything you feel isn't good about HPV vaccination? Can you tell me more about it?
How important do you think it is for adolescent girls to receive the vaccine?	- Probe 1: Do you think it's important? Why? - Probe 2: Have you heard about cervical cancer before? What do you know about it? - Probe 3: What do you think causes cervical cancer?

Social Process

Question or Instruction	Probe
Social norms (support of family and religious leader) and health worker recommendation	

Do the people around you know about the HPV vaccine?	- Probe 1: What do they know?
Do the people around you say/believe something about HPV vaccination?	- Probe 1: Is it negative or positive? - Probe 2: If negative: why do you think people are saying negative on it? / If positive: how this vaccine can be positive with your daughter? - Do these have any influence on your decision about HPV vaccination?
How do the opinions of healthcare providers, teachers, or religious leaders impact your decision about vaccinating your daughter?	- Probe 1: Do other parents you know vaccinate their daughters? - Probe 2: How does this affect your views? - Probe 3: Did any healthcare worker (e.g., doctor, nurse, community health worker) recommend that your child receive the HPV vaccine? - Probe 4: How much do you trust the advice given by health workers about vaccines?
Have you discussed the HPV vaccine with family members, friends, or neighbors?	- Probe 1: What is their response or opinion? - Probe 2: If negative: how is their opinion on HPV vaccination in your community / If positive: do they prefer school-based vaccination or community-based vaccination? Why?
Were there any community sensitization programs for the HPV vaccine in Korea?	- Probe 1: What was that? (Clues – miking, courtyard meeting, leaflet, postering, or anything else?) - Probe 2: If vaccinated, do you think this sensitization program helped you to make positive decisions on taking the vaccine? / If not vaccinated, didn't you believe the sensitization program, why?

Motivation

Question or Instruction	Probe
Intention to get the vaccine for the daughters	
Has your daughter taken the HPV vaccine? From where?	- Probe 1: If yes, what makes you decide to accept HPV vaccination for your daughter / If no, what is the reason you don't accept the vaccination? - What would encourage you to vaccinate your daughter (e.g., more information, free vaccines, campaigns)?
Is your daughter go to school?	- Probe 1: If yes, is there anyone from the school authority communicating with you regarding HPV vaccination? When and how do they contact you? What did they say? / If no, is there anyone from health

	workers communicating with you regarding HPV vaccination? When and how do they contact you? What did they say? - Probe 2: If school authorities or health workers ever communicate with the caregivers regarding HPV vaccination, do you think you get enough information from them?
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Practical Issues

Question or Instruction	Probe
Availability, affordability, ease of access, respect from health workers	
How convenient is it for you to get the vaccination service for your daughter?	- Probe 1: Is it far from your home? Do you go to work at that time? Is the vaccine center crowded?
What kind of vaccine center facility do you think would motivate more?	- Probe 1: What do you think about school-based or community-based vaccination?
Are there any costs to get the HPV vaccine for your daughter?	
How well-informed do you feel about when and where to vaccinate your daughter?	- Probe 1: Did you hear about the HPV vaccine beforehand? From where? What was that saying? Did that information motivate positively or negatively, how?

Barriers

Question or Instruction	Probe
What things do you think might have acted as barriers to getting your daughter vaccinated?	- Probe 1: Can you talk more about the barriers? Just assume if they talk about rumors about vaccines then ask.... - Probe 2: What kind of rumors did you hear? Can tell me elaborately? Was this the reason for not taking the vaccine?
Do you have any difficulties with taking time off work to get your daughter vaccinated?	

সাক্ষাৎকার নির্দেশিকা

গবেষণার শিরোনাম: ঢাকা কড়াইল বস্তিতে উপযুক্ত কিশোরী মেয়েদের HPV ভ্যাকসিন গ্রহণে তত্ত্বাবধায়কদের প্রেরণা এবং বাধা অন্বেষণ: সিদ্ধান্ত গ্রহণের প্রক্রিয়াগুলির একটি গুণগত অধ্যয়ন।

ভূমিকা

প্রশ্ন বা নির্দেশনা	অনুসন্ধান
আসসালামুয়ালাইকুম Wr. Wb/হ্যালো, আমি (সাক্ষাৎকারকারীর নাম) ব্র্যাক জেপির্জি স্কুল অফ পাবলিক হেলথ, ব্র্যাক ইউনিভার্সিটি থেকে এসেছি। সাক্ষাৎকারটি প্রায় ৩০ মিনিট সময় নেবে। আপনার দেওয়া উত্তরগুলি রেকর্ড করা হবে এবং সম্পূর্ণ গোপনীয় থাকবে। আপনি যদি কোনো প্রশ্নের উত্তর দিতে না চান, শুধু আমাকে জানান। আপনি কি আমার সাথে এই সাক্ষাৎকারে অংশ নিতে ইচ্ছুক? আপনি কি আমাকে আমাদের এই কথোপকথন রেকর্ড করার অনুমতি দেবেন?	
আপনি এবং আপনার পরিবার সম্পর্কে আমাকে কিছু বলুন।	- বয়স: আপনার বয়স কত? - বৈবাহিক অবস্থা: আপনার বর্তমান বৈবাহিক অবস্থা কি? - শিক্ষার স্তর: আপনি শিক্ষার সর্বোচ্চ স্তর কোনটি সম্পন্ন করেছেন? - পেশা: আপনার প্রাথমিক পেশা বা আয়ের উৎস কী? - আপনার বাড়িতে আপনার সাথে আর কে কে থাকে? - আপনার সন্তানের বা সন্তানদের বয়স কত? - আপনার বাচ্চারা কি তাদের HPV ভ্যাকসিন নিয়ে আপ টু ডেট আছে?

চিন্তা ও অনুভূতি

প্রশ্ন বা নির্দেশনা	অনুসন্ধান
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অনুভূত রোগের ঝুঁকি এবং ভ্যাকসিনের উপর আস্থা	
আপনি HPV টিকা সম্পর্কে কী জানেন এবং এটি কীভাবে স্বাস্থ্যকে প্রভাবিত করে?	-অনুসন্ধান ১ঃ আপনি কি মনে করেন এটি একটি ভালো জিনিস? কেন? - অনুসন্ধান ২ঃ HPV টিকা দেওয়ার বিষয়ে এমন কিছু কি আছে যা আপনার কাছে ভালো মনে হয় না? আপনি আমাকে এটা সম্পর্কে আরো কিছু কি বলতে পারেন?
কিশোরী মেয়েদের ভ্যাকসিন নেয়া কতটুকু গুরুত্বপূর্ণ বলে আপনি মনে করেন?	অনুসন্ধান ১ঃ আপনি কি মনে করেন এটা গুরুত্বপূর্ণ? কেন? অনুসন্ধান ২ঃ আপনি কি আগে জরায়ুর ক্যান্সারের কথা শুনেছেন? আপনি এটা সম্পর্কে কি জানেন? অনুসন্ধান ৩ঃ জরায়ুর ক্যান্সারের কারণ কী বলে আপনি মনে করেন?

ক্রমিক প্রক্রিয়া

প্রশ্ন অথবা নির্দেশনা	অনুসন্ধান
সামাজিক নিয়ম (পরিবার এবং ধর্মীয় নেতার সমর্থন) এবং স্বাস্থ্যকর্মীর সুপারিশ	
আপনার আশেপাশের লোকেরা কি HPV ভ্যাকসিন সম্পর্কে জানেন?	অনুসন্ধান ১ঃ তারা কী জানে?
আপনার আশেপাশের লোকেরা কি HPV টিকা সম্পর্কে কিছু বলে/বিশ্বাস করে?	-অনুসন্ধান ১ঃ এটা নেতিবাচক নাকি ইতিবাচক? -অনুসন্ধান ২ঃ যদি নেতিবাচক হয়ঃ কেন আপনি মনে করেন যে লোকেরা এটিকে নেতিবাচক বলছে? / যদি ইতিবাচক হয়ঃ কিভাবে এই ভ্যাকসিন আপনার মেয়ের ক্ষেত্রে ইতিবাচক হতে পারে? - HPV টিকা দেওয়ার বিষয়ে আপনার সিদ্ধান্তের উপর এগুলোর কি কোন প্রভাব আছে?

স্বাস্থ্যসেবা প্রদানকারী, শিক্ষক বা ধর্মীয় নেতাদের মতামত কীভাবে আপনার মেয়েকে টিকা দেওয়ার বিষয়ে আপনার সিদ্ধান্তকে প্রভাবিত করে?	- অনুসন্ধান ১ঃ আপনার পরিচিত অন্য অভিভাবকরা কি তাদের মেয়েদের টিকা দেন? - অনুসন্ধান ২ঃ এটি কীভাবে আপনার মতামতকে প্রভাবিত করে? - অনুসন্ধান ৩ঃ কোন স্বাস্থ্যসেবা কর্মী (যেমন, ডাক্তার, নার্স, কমিউনিটি হেলথ ওয়ার্কার) কি আপনার সন্তানকে HPV ভ্যাকসিন নেওয়ার পরামর্শ দিয়েছেন? - অনুসন্ধান ৪ঃ ভ্যাকসিন সম্পর্কে স্বাস্থ্যকর্মীদের দেওয়া পরামর্শকে আপনি কতটা বিশ্বাস করেন?
আপনি কি পরিবারের সদস্য, বন্ধু বা প্রতিবেশীদের সাথে HPV ভ্যাকসিন নিয়ে আলোচনা করেছেন?	- অনুসন্ধান ১ঃ তাদের প্রতিক্রিয়া বা মতামত কি? - অনুসন্ধান ২ঃ যদি নেতিবাচক হয়ঃ আপনার সম্প্রদায়ের এইচপিভি টিকা সম্পর্কে তাদের মতামত কেমন / যদি ইতিবাচক হয়ঃ তারা কি স্কুল-ভিত্তিক টিকা দান কর্মসূচী পছন্দ করে? না সম্প্রদায়-ভিত্তিক টিকা দান কর্মসূচী পছন্দ করে? কেন?
কড়াইলে কি HPV ভ্যাকসিনের জন্য কোন সম্প্রদায় সংবেদনশীল প্রোগ্রাম ছিল?	- অনুসন্ধান ১ঃ এটা কি ছিল? (সংকেত - মাইকিং, উঠান বৈঠক, লিফলেট, পোস্টারিং, বা অন্য কিছু?) - অনুসন্ধান ২ঃ যদি টিকা দেওয়া হয়, আপনি কি মনে করেন এই সংবেদনশীল প্রোগ্রামটি আপনাকে ভ্যাকসিন নেওয়ার বিষয়ে ইতিবাচক সিদ্ধান্ত নিতে সাহায্য করেছে?/ যদি টিকা না দেওয়া হয়, আপনি কি সংবেদনশীলত প্রোগ্রামে বিশ্বাস করেননি, কেন?

প্রেরণা

প্রশ্ন অথবা নির্দেশনা	অনুসন্ধান
কন্যাদের টিকা দেওয়ার ইচ্ছা	
আপনার মেয়ে কি এইচপিভি ভ্যাকসিন নিয়েছে? কোথা থেকে?	- অনুসন্ধান ১ঃ যদি হ্যাঁ হয়, তাহলে কী কারণে আপনি আপনার মেয়ের জন্য HPV টিকা গ্রহণ করার সিদ্ধান্ত নেন/ যদি না হয়, তাহলে আপনি টিকা গ্রহণ না করার কারণ কী?

	- আপনার মেয়েকে টিকা দিতে কী আপনাকে উৎসাহিত করবে (যেমন, আরও তথ্য, বিনামূল্যের টিকা, প্রচারণা)?
আপনার মেয়ে কি স্কুলে যায়?	- অনুসন্ধান ১০: যদি হ্যাঁ হয়, স্কুল কর্তৃপক্ষের কেউ কি আপনার সাথে HPV টিকা দেওয়ার বিষয়ে যোগাযোগ করেছেন? কখন এবং কিভাবে তারা আপনার সাথে যোগাযোগ করেছে? তারা কি বলল? / যদি না হয়, তাহলে স্বাস্থ্যকর্মীদের থেকে কেউ কি আপনার সাথে HPV টিকা দেওয়ার বিষয়ে যোগাযোগ করেছেন? কখন এবং কিভাবে তারা আপনার সাথে যোগাযোগ করেছে? তারা কি বলল? - অনুসন্ধান ২০: যদি স্কুল কর্তৃপক্ষ বা স্বাস্থ্যকর্মীরা কখনও HPV টিকা দেওয়ার বিষয়ে তত্ত্বাবধায়কদের সাথে যোগাযোগ করে, আপনি কি মনে করেন আপনি তাদের কাছ থেকে যথেষ্ট তথ্য পেয়েছেন?

ব্যবহারিক বিষয়াদি

প্রশ্ন অথবা নির্দেশনা	
প্রাপ্যতা, ক্রয়ক্ষমতা, সহজলভ্যতা, স্বাস্থ্যকর্মীদের কাছ থেকে সম্মান	
আপনার মেয়ের জন্য টিকা দেওয়ার পরিষেবা পাওয়া আপনার পক্ষে কতটা সুবিধাজনক?	- অনুসন্ধান ১০: এটা কি আপনার বাড়ি থেকে অনেক দূরে? আপনি কি সেই সময় কাজে যান? ভ্যাকসিন সেন্টারে কি অনেক ভিড় থাকে?
কোন ধরনের ভ্যাকসিন সেন্টার সুবিধা আরও অনুপ্রাণিত করবে বলে আপনি মনে করেন?	- অনুসন্ধান ১০: স্কুল-ভিত্তিক বা সম্প্রদায়-ভিত্তিক টিকাদান সম্পর্কে আপনি কী মনে করেন?
আপনার মেয়ের জন্য HPV ভ্যাকসিন পেতে কোন কিছু খরচ করতে হয়?	
কখন এবং কোথায় আপনার মেয়েকে টিকা দিতে হবে সে সম্পর্কে আপনি কতটা সচেতন?	- অনুসন্ধান ১: আপনি কি আগে HPV ভ্যাকসিন সম্পর্কে শুনেছেন? কোথা থেকে? কি বলেছিল?

	সেই তথ্যটি কি ইতিবাচক বা নেতিবাচকভাবে অনুপ্রাণিত করেছিল, কীভাবে?
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বাধা

প্রশ্ন অথবা নির্দেশনা	অনুসন্ধান
আপনার মেয়েকে টিকা দেওয়ার ক্ষেত্রে কোন বিষয়গুলো বাধা হিসেবে কাজ করেছে বলে আপনি মনে করেন?	- অনুসন্ধান ১ঃ আপনি কি বাধাগুলি সম্পর্কে আরও কথা বলতে পারেন? অনুমান করুন যদি তারা ভ্যাকসিন সম্পর্কে গুজব সম্পর্কে কথা বলে তবে জিজ্ঞাসা করুন.... - অনুসন্ধান ২ঃ আপনি কি ধরনের গুজব শুনেছেন? আমাকে বিস্তারিত বলতে পারেন? এটা কি ভ্যাকসিন না নেওয়ার কারণ ছিল?
আপনার মেয়েকে টিকা দেওয়ার জন্য কাজের ছুটি নিয়ে যেতে আপনার কি কোনো অসুবিধা আছে?	

No	Domains	Themes	Quote from Transcripts	Findings
1	Thinking and Feeling	Perceived disease risk	"I know a little after watching it on TV" (IDI 1) "I believed her teacher and I also heard about the vaccine on TV" (IDI 1) "When my daughter told me and I saw it on tv I believed them" (IDI 1) "Normally while watching TV, I have heard about cervical cancer." (IDI 5) "I heard something on the television... children who get married at a young age are more prone to cervical cancer." (IDI 7) "I have heard that it's given to prevent cervical cancer, tumor and other diseases of the uterus" (IDI 1) "No, DOnt know about it" (IDI 2) "I don't understand much about this, as I said I am illiterate." (IDI 5) "Yes, I have heard this from the news, and my daughter's teachers also said it's good for her" (IDI 1)	- Awareness through media and trusted sources: Many caregivers have initial awareness of cervical cancer and HPV vaccination through television and trusted individuals like school teachers - Knowledge of cervical cancer: Some caregivers were aware of cervical cancer as a serious health issue and can be prevented by taking the HPV vaccination - Knowledge gap: Other caregivers have a limited understanding of cervical cancer or HPV vaccination including the risk factors. Only one caregiver (IDI 7) know one of the risk factors of cervical cancer
2		Perceived benefits and risks	"The day she had the vaccine, she had a fever, then she had Napa, after that, Alhamdulillah she recovered" (IDI 1) "Heard that children get sick after vaccination." (IDI 2) "There are people who suffer from allergies after getting the corona vaccine." (IDI 5) "We have seen on Facebook that many children got sick because of this vaccine." (IDI 2) "If it's free, there will be a place for fear." (IDI 5) "Other guardians told me the vaccine causes problems while giving birth." (IDI 1) "We didn't have vaccines like this before; now, there are a lot, and it feels like we should give them" (IDI 1)	- Perceived safety: The community raised concern about the side effects of vaccination. These concerns are shaped by their personal experiences, misinformation in social media, and community hesitancy to the vaccination. - Perceived trust: Some respondents have hesitancy about the quality of free vaccines and misinformation from social media and peers confidence in vaccine program - Perceived benefits: Limited awareness of the vaccine's advantage create concerns about vaccine risks over vaccine benefits
3	Social Processes	Influence of trusted figures	"Her teacher said this vaccine is good for her, then I got some courage and told her to have it." (IDI 1) "When we denied the head Sir regarding vaccination, they did not call us further." (IDI 2) "The headmaster didn't call us to explain about the vaccine." (IDI 6) "Beauty apa came and told us that you can take this vaccine." (IDI 2) "I will consult with my known doctor... If they say it's good, I will give it." (IDI 6) "A healthcare worker came but didn't inform much." (IDI 5) "Doctors never want bad for their patients... I trust doctors more." (IDI 6) "Teachers of the madrasa don't believe these things." (IDI 5) "My daughter's teacher and friends influenced me" (IDI 1) "Maybe if someone convinced us properly, we might consider it." (IDI 2)	- Significant influence of teachers, community health workers, and healthcare workers: Teachers, community health workers, and healthcare workers are primary influencers in caregivers' decision-making to accept HPV vaccination for their daughters. - Distrust of vaccination among teachers at madrasa schools: Caregivers with daughters attending madrasa schools noted that madrasa teachers do not trust or support vaccination. - Peer influence: Other than formal figures, peers and friends of children also play a key role in the children decision-making to take the vaccination
4		Community beliefs and social norms	"They think it can cause problems while giving birth" (IDI 1) "People in this area know mostly negative things about it." (IDI 2)	- Negative perceptions of the community on the HPV vaccine are found: Some people believe that HPV vaccination is a bad thing. This shapes community beliefs about the HPV vaccine with negative narratives and creates hesitancy.
5		Gender Roles and relations	"Her mother went to the school and forbade them to give our daughter any vaccines." (IDI 6) "Maybe because it is a female matter and so they felt too shy to express it to me." (IDI 7) "Generally, people talk about this vaccine to the mothers in most cases." (IDI 7) "Children's mother told me first, from whomever she heard, I thought it was reliable." (IDI 8) "According to the culture of Bangladesh, girls cannot share as much with their father." (IDI 8)	- Maternal influence to take HPV vaccination: Mothers have a key role in deciding their daughters' vaccination. They are also the first to receive and share information within the family regarding HPV vaccination. - Gendered approach to health communication: Cultural norms in Bangladesh make a preference for discussing female health matters, such as HPV vaccination, with mothers rather than fathers.
		Influence of policy mandates	"Nothing after you are gone. As we have not given the vaccine... now if they (govt.) make any rules like the NID card that everyone must create one... and if they make this vaccine a must have, then we will have to take it. But now, 2 people are taking it in every 10, we are not amongst that 2. Understood?" (IDI 2)	- Role of mandates: The respondent indicates that they would comply with vaccination if it were mandated
		Community-engagement style preference	"I think community meetings can help a lot. If you conduct miking or provide leaflets, educated people can understand, but under-educated people can't understand much from that." (IDI 7)	- Need for face-to-face convincing: Caregivers mentioned they might consider vaccination if trusted figures or persons come and convince them directly about their concern about vaccination
6	Practical Issues	Preference of vaccination site	"She got it from her school. It's very near to our house, only 3 minutes away." (IDI 1) "A health care clinic might be good" (IDI 5) "I think it is better to be given at clinics. Guardians can talk to the doctors." (IDI 6) "Schools have a specific location to conduct the vaccination process... I find the school vaccination program more trustworthy." (IDI 7)	- Convenience of school-based vaccination: schools are considered a convenient and reliable place for vaccination. Caregivers also have trust in the school vaccination program - Preference for healthcare clinics: Some caregivers who have daughters from madrasa schools prefer to take the HPV vaccination from clinic as they can interact with healthcare workers.
7		Affordability of the vaccine	"They told us it's free, we can't afford to buy one, that's why we gave it." (IDI 1) "It's free from the government." (IDI 2)	- Affordability of vaccine is a significant factor: Caregivers found relying on free vaccination programs provided by the government due to financial constraints.
8		Limited engagement of the implementers	"Then when she was in class five, she got her first and only HPV vaccine. No one informed us about the second dose." (IDI 1) "She took our number to inform us later. Then she never informed us or came back." (IDI 5) "If they don't talk in detail with us... we won't let our children take the vaccine." (IDI 6) "If they explained face-to-face, I could ask why they are giving it." (IDI 8) "We didn't hear anything about this vaccine; there was no miking or meeting in our area." (IDI 1) "We haven't seen any ads on TV or anything about it." (IDI 2) "I didn't see anything on Facebook or newspapers." (IDI 8)	Inadequate communication from the implementers: Gaps are found in communication from vaccination implementers such as lack of engagement and follow-up information to the caregivers. - Need for personal interaction: Caregivers mentioned a need for face-to-face interactions with implementers to address concerns and doubts regarding HPV vaccination - Limited community awareness campaign: Caregivers expressed limited community engagement activity, such as public health promotion or community campaigns to raise awareness about the HPV vaccine - Lack of engagement from school authorities and healthcare workers among those who don't take HPV vaccination: Limited follow-up from school authorities and healthcare workers reduced caregivers' willingness to allow their daughters to take HPV vaccination
9	Motivation	Intentions to protect the children	"I thought we should give her. I don't want my daughter to suffer from these after her marriage." (IDI 1) "If they say it's for my children's betterment, then I will give it." (IDI 5) "Even though I will have to leave my job aside for some time, I have to go with my daughter for her healthy life." (IDI 7) "People take vaccines for wellness. Now, if it causes anything bad, why would we?" (IDI 2) "If you can explain it well, then I will understand that this is the cure for this problem." (IDI 5)	- Protective motivation: Caregivers are motivated to protect their daughters' health and future by preventive action to long-term health issues. Some caregivers also mentioned their commitment such as taking time off work to ensure their children's health - Need for clear information to strengthen caregivers' commitment to take HPV vaccination: trust and commitment to vaccinating daughters depend on how the implementers convince or communicate with caregivers

