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FACTORS INFLUENCING THE UPTAKE OF THE HUMAN PAPILLOMAVIRUS VACCINE AMONG GIRLS AGED 9-10 YEARS AT KAJJANSI HEALTH CENTRE IV, WAKISO DISTRICT, A CROSS-SECTIONAL STUDY.

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Abstract

Background

The study aims to identify the factors influencing the uptake of the human papillomavirus vaccine among girls aged 9-10 years at Kajjansi Health Centre IV, Wakiso District.

Methodology

This study adopted a cross-sectional study design, utilizing quantitative methods of data collection. It included 30 participants, who were parents and legal guardians of adolescent girls aged 9-10 years attending Kajjansi Health Centre IV accompanied by adolescents.

Results

The majority 29 (97%) attained formal education, and 1 (3%) were not educated. 21(70%) reported no awareness about the existence of HPV and its vaccine. 23 (76.7%) thought the vaccine wasn't safe and beneficial for their children to receive. 19(63.3%) reported traditional cultural beliefs or taboos against the vaccination of children, and 11 (36.7%) reported none. 20 (66.7%) reported mistrust towards vaccines provided by the government in their families or communities. 16 (53%) reported that they waited for the health worker for more than an hour, while 1 (3%) noted low delay. 17 (57%) responded that health workers were rude during their last visit, and 3 (10%) said they were polite. 21 (70%) appreciated vaccine availability in the facility.

Conclusion

Therefore, factors influencing the uptake of the HPV vaccine included the education level of parents, lack of awareness about the vaccine and its benefits, individual attitude towards the vaccine, poor health workers' attitude, and long waiting times to receive service.

Recommendation

Ministry of Health, health workers, and other responsible bodies should use all available avenues to increase the public knowledge concerning the availability, safety, and benefits of HPV vaccine through routine public awareness campaigns, regular health education talks, printed flyers, and involvement of village health team to help deal with HPV vaccine hesitancy.

Keywords: *Human papillomavirus, Uptake of the HPV vaccine, Girls aged 9-10 years, Kajjansi Health Centre IV.*
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Background of the study

A comprehensive analysis of cervical cancer incidence and mortality worldwide emphasized the importance of HPV vaccination in reducing these outcomes, Arbyn et al. (2020). Their findings underscore the global burden of cervical cancer and the need for effective vaccination programs. Brewer et al. (2017) noted that parental attitudes and knowledge significantly impact vaccine uptake, and their qualitative analysis reveals that misinformation and concerns about vaccine safety are common barriers. Research in Kenya by Gatumo et al. (2018) showed that women's knowledge and attitudes towards cervical cancer and its prevention are critical factors in vaccine uptake. Their study found that improved awareness and educational interventions can significantly enhance vaccine acceptance. Similarly, Vermandere et al. (2018) focused on Eldoret, Kenya, and found that cultural beliefs and lack of information were major determinants of HPV vaccine acceptance. In Lira District, identifying factors such as educational level and socio-economic status as influential in vaccine uptake Kisakye et al. (2018). Their findings suggest that targeted educational programs and community engagement can improve vaccination rates. Isabirye et al. (2020) extended this research by examining factors associated with HPV vaccination uptake in Uganda, emphasizing that socio-economic factors and healthcare system barriers play significant roles.

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Socio-cultural factors play a crucial role in influencing HPV vaccine uptake. Parental attitudes and beliefs about vaccines are critical determinants of whether their daughters receive the HPV vaccine. Studies have shown that parental concerns about vaccine safety, lack of knowledge about HPV and its link to cervical cancer, and cultural beliefs about vaccines can all hinder vaccine uptake (Brewer et al., 2017). In many sub-Saharan African communities, there is a general lack of awareness about cervical cancer and the benefits of HPV vaccination, which contributes to low vaccination rates (Masika, Ogembo, Chabeda, Wamai, & Mugo, 2015). The healthcare system itself can pose barriers to HPV vaccine uptake with issues such as limited availability of the vaccine, insufficient healthcare infrastructure, and lack of trained healthcare providers can impede vaccination efforts (Dempsey, Schaffer, Cohn, & Huang, 2018). Effective healthcare provider communication is crucial in encouraging HPV vaccine uptake. Providers' recommendations are a strong predictor of whether parents choose to vaccinate their children, but in many settings, healthcare providers may lack the training or resources to effectively communicate the benefits of the HPV vaccine (Gilkey et al., 2016). Parental attitudes towards vaccination play a crucial role in determining whether children receive the HPV vaccine. Concerns about vaccine safety, efficacy, and potential side effects are common among parents. Misinformation and fears about vaccine safety can lead to vaccine hesitancy Brewer et al. (2017). Additionally, beliefs about the appropriateness of vaccinating young girls against a sexually transmitted infection, even when the vaccine aims to prevent cancer, impact vaccine decisions. The study aims to identify the factors influencing the uptake of the human papillomavirus vaccine among girls aged 9-10 years at Kajjansi Health Centre IV, Wakiso District.

Methodology

Study Design and Rationale

This study adopted a cross-sectional study design, utilizing quantitative methods of data collection. This approach was chosen for its effectiveness in capturing a broad range of data within a relatively short timeframe. By focusing on quantitative data, the study aimed to systematically analyze numerical data to identify patterns and relationships related to the research objectives, facilitating the generation of a comprehensive and statistically reliable report on the factors influencing HPV vaccine uptake among girls aged 9-10 years.

Study setting and Rationale.

The study was conducted at Kajjansi Health Centre IV, located in Busiro South, Wakiso District, Uganda, 29.8km from Entebbe National Airport via Kampala-Entebbe Road. A semiurban healthcare facility serves an estimated catchment population of 125,000 people, with a wide range of services, including outpatient care, in-patient care with a capacity of 24 beds, maternal and child health, immunizations, cervical cancer screening, also plays a crucial role in preventive healthcare, particularly HPV vaccination. The facility was a key location for studying healthcare behaviors and outcomes due to its involvement in vaccination efforts for girls aged 9-10 years, a pivotal age for receiving the HPV vaccine before the onset of sexual activity to prevent HPV-related diseases, including cervical cancer. The center's diverse socio-economic demographic made it an ideal site for exploring factors influencing vaccine uptake and overall healthcare outcomes in the region.

Study Population

The study included only parents and legal guardians of adolescent girls aged 9-10 years attending Kajjansi Health Centre IV accompanied by the adolescent.

Sample Size Determination

The sample size was calculated using Burton's formula (1965): S=GR/O

Where; S =Sample size

G=Number of respondents to be interviewed a day

R= Maximum number of days for data collection

O= Maximum time the researcher will spend on every respondent

S= (5x30)/5 = 30

Therefore, the study enrolled only 30 participants.

Sampling Procedure

Convenience sampling was employed to select participants for this study. The researcher identified and approached potential respondents who met the selection criteria, making participation as accessible as possible. This method allowed for the inclusion of participants based on their availability and willingness to participate.

Inclusion Criteria

The study included only parents and legal guardians of adolescent girls aged 9-12 years attending Kajjansi Health Centre IV who were accompanied by the adolescent and voluntarily consented to participate in the study.

Exclusion Criteria.

The study excluded all parents and legal guardians attending Kajjansi Health Centre IV who were not accompanied by the adolescent and those who denied consent to participate in the study.

Definitions of Variables

Dependent Variables

These variables depend on other factors that are measured. These included the uptake of the HPV vaccine in young girls aged 9-10 years.

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Independent variables
These included individual-related, cultural, and health facility-related factors such as distance perception of the vaccination, availability, and attitude of health workers.

Research Instruments
The researcher used a self-administered semi-structured questionnaire for data collection to cover a wide range of respondents, which helped to save time and minimize interactions with respondents. The questionnaire consisted of closed-ended questions, including multiple choice questions (MCQs), to streamline responses and facilitate easier analysis.

Pilot Study
The researcher pre-tested the questionnaire among 10 parents and legal guardians of girls aged 9-10 years at Kajjansi Health Centre IV. This helped the researcher ensure quality control as the tool was tested for reliability, consistency, and appropriateness before it was used for data collection, and the necessary changes were made.

Data Collection Procedures
The Charge introduced the researcher to the patients and caregivers, and the purpose of the study was fully explained, They assured them of absolute confidentiality, used unique identifiers instead of names and patient numbers, obtained consent from eligible participants, and started data collection, each respondent used 5minutes to fill the questionnaire. Each respondent was given an equal chance to participate in the study.

Data Management
At the end of each day, the researcher reviewed the questionnaires for completeness, errors, and omissions. The collected data was then organized and securely stored before being entered for analysis.

Data Analysis and presentation
The data was manually tallied and recorded. Thereafter, processed and analyzed using Microsoft Word and Excel programs, and the results were presented in bar graphs, tables, frequency percentages, and pie charts. These methods were preferred because they are convenient and easy to use.

Ethical Consideration
An introductory letter was obtained from the Dean of Mildmay Uganda School of Nursing and Midwifery and then presented to the administration of Kajjansi Health Centre IV. Permission was sought upon reaching the department, the charge introduced the researcher to the patients and caregivers, and the purpose of the study was fully explained. They assured them of absolute confidentiality, used unique identifiers instead of names and patient numbers, obtained consent from eligible participants, and started data collection.

Informed consent.
The charge introduced the researcher to the patients and caregivers, and the purpose of the study was fully explained, assured them of absolute confidentiality, used unique identifiers instead of names and patient numbers, obtained consent from eligible participants, and started data collection, each respondent used 5minutes to fill the questionnaire. Each respondent was given an equal chance to participate in the study.

Results

Individual-related factors influencing the uptake of HPV Vaccine among girls aged 9-10 years at Kajjansi Health Centre IV

Table 1: Individual-related factors that influence the uptake of the HPV Vaccine in girls aged 9-10 years at Kajjansi Health Centre IV.

Responses	Frequency (n=30)	Percentage (%)
Education status of the guardian		
Educated	29	97
Uneducated	1	3
Occupation status of the guardian		
Employed	10	33
Unemployed	20	67

Table 1, the majority, 29 (97%) of the respondents had attained formal education, and the least 1 (3%) had not attained any formal education. 20 (67%) were unemployed, while the least 10 (33%) were employed.

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Figure 1: Distribution of respondents according to awareness about the existence of HPV and its vaccine

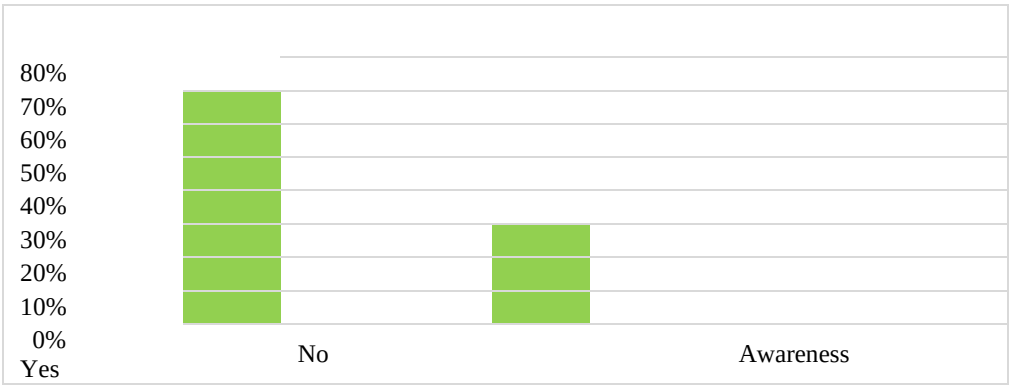

Figure 1 shows that 21(70%) reported that they didn't know about the existence of HPV and its vaccine, and at least 9(30%) reported awareness.

Figure 2: Showing how the respondents received education concerning HPV

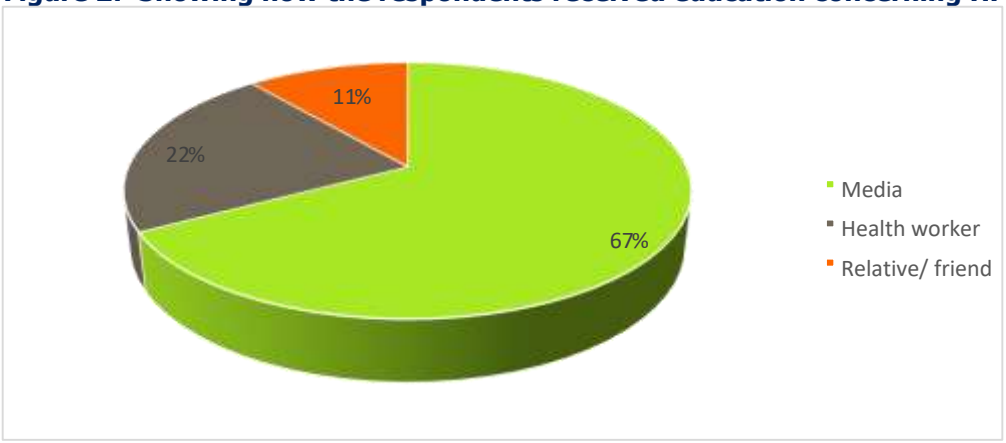

Figure 2, the majority, 6 (67%) of the respondents, received information about HPV and its vaccine from the media, and the least 1(11%) received this education from friends or relatives.

Figure 3: Showing whether it's beneficial and safe for children to receive the HPV vaccine

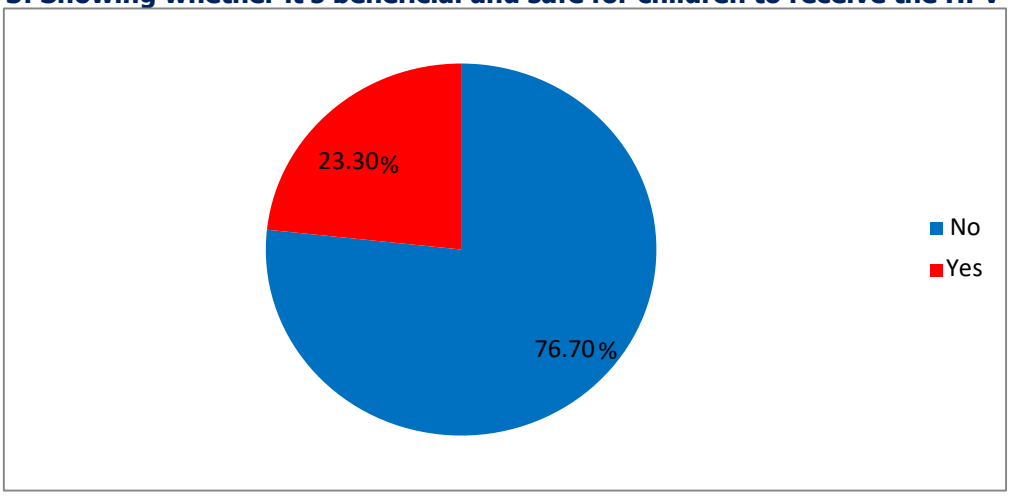

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Figure 3 majority 23 (76.7%) did not think the vaccine was safe and beneficial for their children to receive, and 7 (23.3%) believed the HPV vaccine was safe and beneficial to their children.

Cultural factors that influence the uptake of HPV Vaccine among girls aged 9-10 years at Kajjansi Health Centre IV

Table 2: Cultural factors influencing uptake of HPV among girls aged 9-10 years at Kajjansi Health Centre IV

Item	Frequency (n=30)	Percentage (%)
Traditional cultural beliefs/taboos against the vaccination of children	19	63.3
	11	36.7
Religious support for HPV vaccination	8	26.7
	22	73.3
Family/community mistrusts toward vaccines provided by the government	20	66.7
	10	33.3

Table 2, the majority 19(63.3%) of the respondents reported traditional cultural beliefs or taboos against the vaccination of children, and the least 11 (36.7%) reported none. 22 (73.3%) reported no religious support for HPV vaccination, and a few 8 (26.7%) reported yes on the same. 20 (66.7%) reported mistrust towards vaccines provided by the government in their families or communities, and the least 10 (33.3%) reported no when asked.

Health facility-related factors that influence the uptake of HPV Vaccine among girls aged 9-10 years at Kajjansi Health Centre IV

Figure 4: Showing the distance of respondents from the health center.

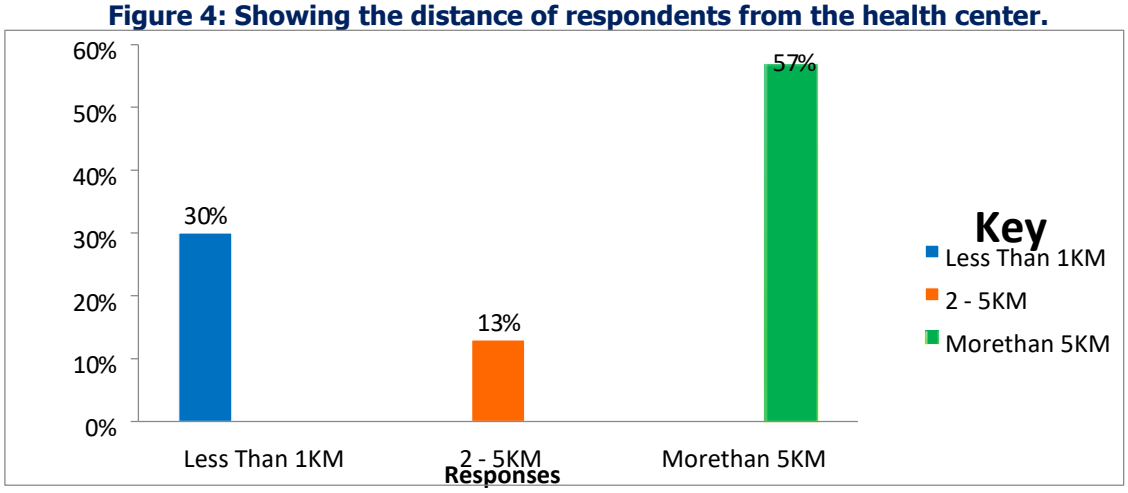

Figure 4, most 17 (57%) of the respondents stayed more than 5 Km away from the health center, and the least 7 (13%) stayed 2–5 KM away from the facility.

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Figure 5: Showing means of transport to the facility

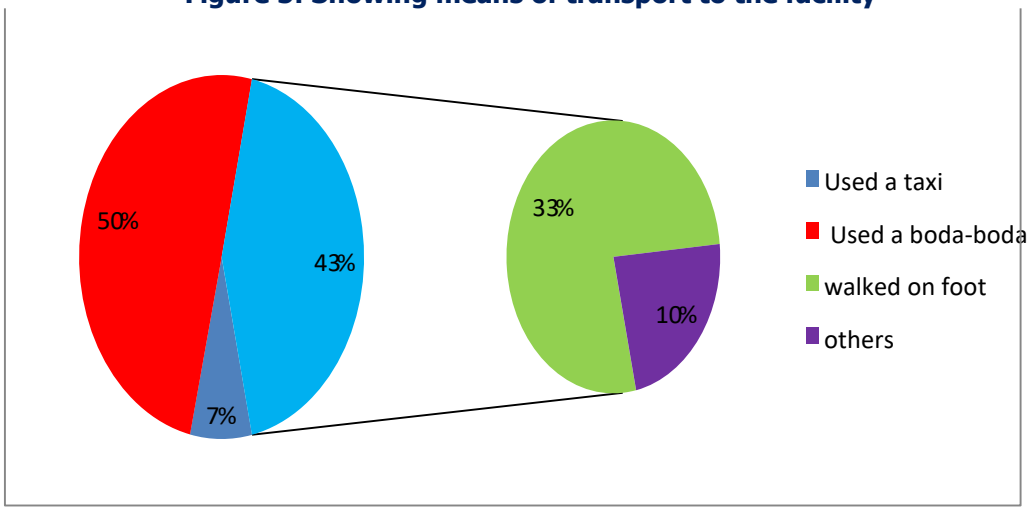

Figure 5, most 15 (50%) reported that they used bodabodas to reach the facility, and the least 2 (7%) used taxis.

Figure 6: Showing the length of time respondents spend at the health center

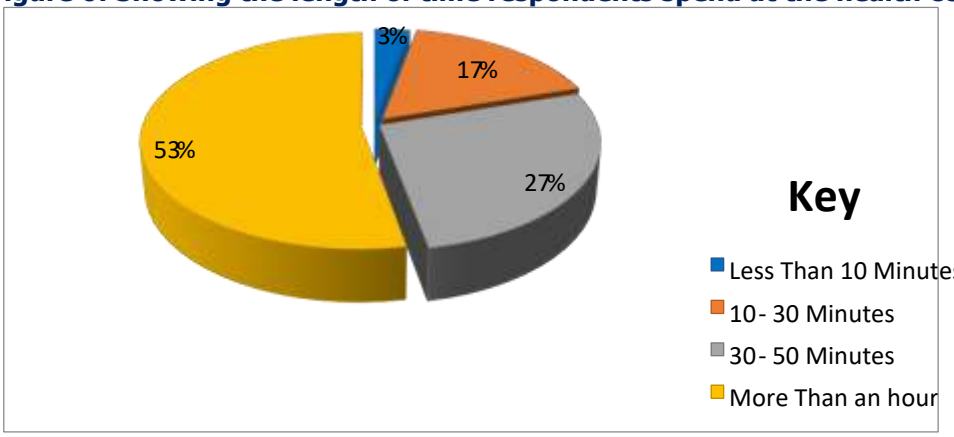

Figure 6 the majority, 16 (53%), reported that they waited for the health worker for more than an hour, while the least 1 (3%) waited for less than 10 minutes.

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Figure 7: Showing whether respondents found a nurse the last time they came to the facility

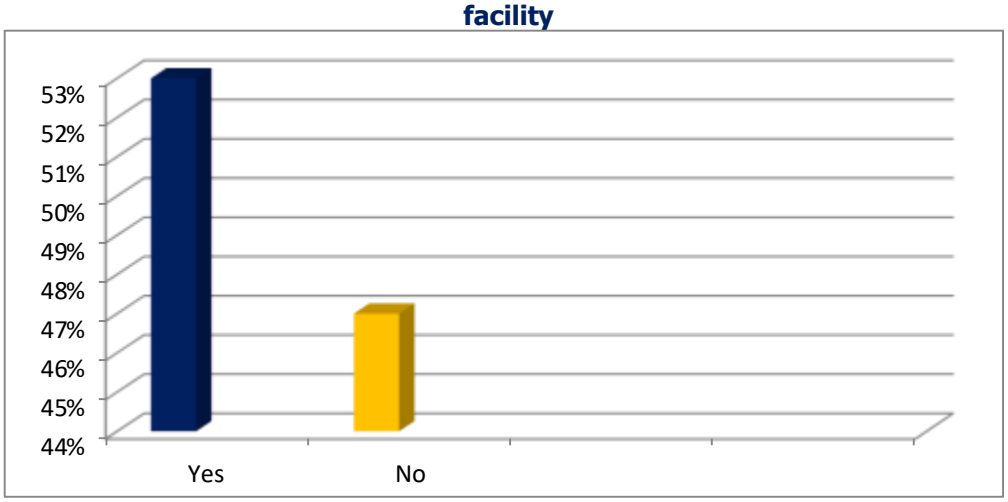

Figure 7 the majority 16 (53%) reported finding a nurse when they visited the health center, while a few 14 (47%) noted that they were not available.

Figure 8: Showing behavior of the health workers

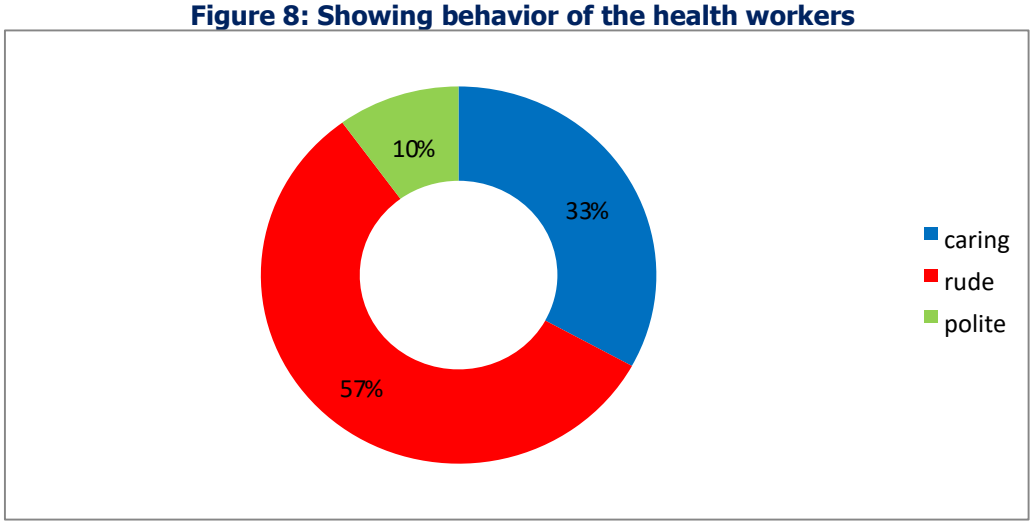

Figure 8 shows that 17 (57%) responded that the health workers were rude during their last visit, and the least 3 (10%) reported that they were polite.

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Figure 9: Distribution of respondents according to whether they have ever brought their children for vaccination and found that the vaccine was not available

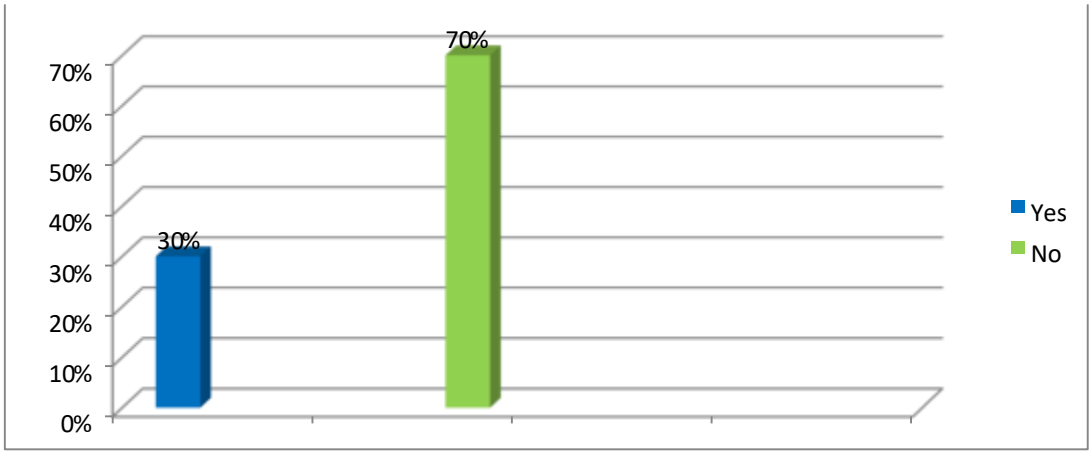

Figure 9 shows that vaccine availability, the highest number of respondents, 21 (70%), reported no, while the least 9 (30%) reported yes.

Discussion

Individual-related factors that influence the uptake of the HPV Vaccine among girls aged 9-10 years at Kajjansi Health Centre IV

Findings showed that the majority of the respondents, 29 (97%), had attained a certain level of formal, and the least 1 (3%) had not attained any. This may be because the government runs free education at the primary level, making it available for all citizens. The one who didn't attain any formal education may have been staying in a village that is so far from schools offering free education, could have dropped out of school, or denied the right to study by caretakers who didn't dim it useful at the time or even the extended poverty that could have made it hard for them to get scholastic materials. A related study done in Cambodia showed that only 36% of the participants were educated, alluding to the lack of formal education being a fundamental cause of vaccine hesitancy due to innumerable myths held strongly in such circles, such as vaccines and modern medicines are intended to reduce life expectancy. Most of the participants, 20 (67%) were unemployed. This could be because they had not finished school and, therefore, could not be productively employed anywhere. The majority, 17 (57%), were housewives fully dependent on their spouses, making it hard for them and their children to access health care services whenever necessary since there is always a need to wait for the husband to grant permission and provide the necessary healthcare fees, 3 (10%) were peasants who are burdened with meeting daily basic needs later on afford health care fees. Similarly, socioeconomic disparities in HPV vaccine uptake were found to be lower uptake among adolescents from lower-income families, confirming that low economic status has a weighty impact on HPV vaccine uptake in Kajjansi Health Centre IV. At least 10 (33%) were employed, 1 (3%) were in formal employment, and 9 (30%) were small business individual owners. These could have been the ones that probably finished school and were able to get employed, opening small businesses and therefore earning a living.

The majority, 21 (70%) of the respondents reported no awareness about the existence of HPV and its vaccine, and the least 9 (30%) reported awareness. This is similar to a study conducted in South Africa, where it was found that most of the participants were not aware of the existence of the human papillomavirus vaccine. This could have been due to limited HPV vaccine public campaigns and irregular or no patient education by healthcare providers to parents and legal guardians who are supposed to bring their adolescent girls to the facilities for vaccination. Most 6 (67%) of the respondents received information from the media, and the least (11%) received this education from friends or relatives. Contrary to this finding, it noted that the biggest number of participants in this study received information from friends and family, which perpetuated a variety of myths among the public that HPV vaccines reduce chances of conceiving in the future and hence regarded it unsafe for their children to receive. Also, the majority, 23 (76.7%) of the respondents, did not think it was safe and beneficial for their children to receive the HPV vaccine. This is disagreeable with confirmed HPV vaccine safety and effectiveness after analyzing 26 HPV vaccine trials. The smallest number of participants, 7 (23.3%), believed the HPV vaccine was safe and beneficial to their children. This could have been due to consistent patient education from health workers and the HPV media campaigns empowering them with accurate information about the safety and benefits of the HPV vaccine.

Cultural factors that influence the uptake of HPV Vaccine among girls aged 9-10 years at Kajjansi Health Centre IV

Study findings showed that 19 (63.3%) of the respondents had traditional cultural beliefs or taboos against the vaccination of children, and the least 11 (36.7%) replied

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no. This is because HPV vaccination is a relatively new concept in our society, and people don't know about its effectiveness and how it works. A related study in Guatemala reported that people were generally against HPV due to cultural mistrust, posing a strong barrier to uptake. Most 22 (73.3%) of the respondents reported no religious support for HPV vaccination, and a few 8 (26.7%) reported support. Most Christian faiths do not preach against ways of medical treatment. Despite a study linking the Muslim faith with an increased likelihood of being against vaccination, the study found the Muslim faith to be rather protective of the respondents as they were less likely to be against the vaccine. The reason for the variation is not well understood.

The majority, 20 (66.7%) of the respondents, reported mistrust towards vaccines provided by the government communities, and the least 10 (33.3%) reported No on the same question. This study is in close agreement with a study on delays in seeking institutional health care among respondents in Ethiopia, where (40%) of them had not received any information to accord them the confidence to bring their children to receive the vaccine.

Health facility-related factors that influence the uptake of HPV Vaccine among girls aged 9-10 years at Kajjansi Health Centre IV

Findings showed that 17 (57%) of the respondents moved more than 5 Km away from the health center, and the least 7 (13%) stayed 2–5 KM away from the facility. This means that the more girls stayed away from the facility, the higher the chances for them to report late for vaccination and vice versa. This agrees with a study on health-seeking behavior and health service utilization in Pakistan, where it was noted that participants who lived a distance from a health facility >10 KM were about 2 times delayed in seeking care than those who lived ≤ 10 km from a health facility. This shows that distance was a factor that had a tremendous effect on delays due to high transport costs incurred by caretakers and travel fatigue. The majority, 15 (50%) of the respondents, reported that they used boda-bodas, and the least 2 (7%) used taxis. Those who were able to get boda-bodas may have been brought by their fathers before they left for work. However, this meant the absence of their relatives meant that they could not go to the facility, too. This is in agreement with a study regarding girl child health care in Eastern Uganda, where accessibility to care was hard due to very long distances from the facilities, difficult geographical locations like mountainous regions, people living on islands are barely able to access vaccination services later on other health care services.

Furthermore, 16 (53%) respondents reported that they waited for more than an hour, while at least 1 (3%) waited for less than 10 minutes. This implies that because of the long waiting hours, parents and the girls had to sometimes leave the health facility without the service to return home in time to perform household chores, go to work, and other parental responsibilities, causing more delays in the uptake of HPV vaccination. This means they could wish to spend a limited time only. The study agrees that delays in utilizing institutional health services showed that leave health care services in public health care facilities unutilized due to very long queues and a bigger patient-to-health worker ratio, consistently leading to delays in access to required care services. Most 16 (53%) reported finding a health worker when they came to the facility. These could be the ones who respected their appointment days and availed themselves early. A few 14 (47%) noted that they were not available. These may have come on appointment days or even late. Important to note that maybe they even came when the midwives and nurses were not around, or they ignored them just. When such a thing happens, this could push them away and hence not come next time, hence reducing the institutional care delivery. This is in agreement with a study on delays in the utilization of institutional healthcare services due to missed hospital appointments, late arrivals to the facility by patients, and sometimes by the health workers.

The majority, 17 (57%), responded that the health workers were rude. Such a complaint is not a new thing where clients are harassed by the people they go to in need of care and answers. These girls may have experienced this several times. The least 3 (10%) noted that they were polite. This was also stressed in a study about the factors associated with delayed Attendance for health care in Malawi that noted that previous poor experience of health care, lack of politeness from health care professionals; girls stated that some health staff members were merely rude, openly shouting harshly at parents, sometimes even in front of their children leaving them feeling utterly disrespected and biased about the facility and most return not to avoid experiencing similar treatment or worse.

Conclusion

The research findings demonstrated low uptake of the HPV vaccine among girls aged 9-10 years at Kajjansi Health Center IV about the obvious benefits of the vaccine. Major hindrances to the uptake of the HPV vaccine included the education level of parents, occupation, awareness about the vaccine and its benefits, individual attitude towards the vaccine, vaccine availability at the facility, health workers' attitude, waiting time at the facility and distance to had a significant association.

Recommendation

Ministry of Health, health workers, and other responsible bodies should use all available avenues to increase public knowledge concerning the availability, safety, and benefits of HPV vaccine through routine awareness campaigns. The government, through the Ministry of Health, should improve health infrastructure and avail all equipment required by health workers to efficiently provide HPV vaccination services also in rural areas to ensure equal access to health care services.

The administration of Kajjansi Health Center IV should ensure a continuous supply of the vaccine and all required equipment from the district. Availing all-inclusive

opportunities for refresher training and workshops and more staff support supervision for the nursing staff to be updated for effective service delivery. Health workers at Kajjansi Health Center IV should endeavor to counsel and give relevant information through health educating parents and guardians regarding the HPV vaccine to nullify the myths amassed about the vaccine.
Ensuring reduced waiting time at the facility when parents seek out health services through adequate staffing, streamlining patient flow processes at the facility. Involvement of the village health teams and local leaders in the HPV vaccination program to aid in spreading the word in the community since they are known and usually trusted by their community members.

Acknowledgment
I would like to thank God, my family, the school administration of Mildmay Uganda School of Nursing and Midwifery, my supervisor, and the nursing staff at Kajjansi Health Centre IV for the support and guidance rendered during the research period. God richly bless you.

List of Abbreviations
HPV: Human Papillomavirus
IV: Four
MCQs: Multiple choice questions

Source of funding
There's no source of funding noted.

Conflict of interest
No conflict of interest was reported.

Author contributions.
Irene Nantongo was responsible for data collection and compiling study reports.
Rebecca Namubiru actively supervised all levels undertaken during the study.

Data availability
Permission to reuse published work can be sought from the Mildmay School of Nursing and Midwifery.

Author Biography
Irene Nantongo is a diploma nursing extension student at Mildmay Uganda School of Nursing and Midwifery.
Rebecca Namubiru is a tutor at Mildmay Uganda School of Nursing and Midwifery.
Immaculate Prosperia Naggulu is the dean of studies at Mildmay Uganda School of Nursing and Midwifery.

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