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Attitude towards human papillomavirus vaccine uptake among girls aged 9-13 years in Kyenjojo Primary School, Kyenjojo district. A cross-sectional study.

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Abstract.

Background:
In Uganda, the burden of cervical cancer has increased significantly, partly due to low uptake of preventive measures such as HPV vaccination. This study assessed attitudes towards HPV vaccine uptake among girls aged 9–13 years at Kyenjojo Primary School in Kyenjojo District.

Methodology:
A cross-sectional study employing quantitative methods was conducted among 70 girls aged 9–13 years. Respondents were selected using simple random sampling. Data were collected using a structured, researcher-administered questionnaire translated into Rutooro. Data were analyzed using SPSS to generate descriptive statistics, including frequencies and percentages, and results were presented in tables and charts. Ethical approval, consent, and assent were obtained prior to data collection.

Results:
The majority of respondents (49.3%) were aged 13 years, with most being Batoro (53%) and Protestants (40.2%). Slightly more than half (52.8%) had received the HPV vaccine, indicating moderate uptake. Most vaccinations were conducted at school (39.3%). A large proportion (85%) reported no side effects following vaccination, suggesting generally positive experiences. However, 71% of respondents did not receive health education prior to vaccination, and information sources were inconsistent, with only a small proportion obtaining information from parents (14%) and health workers (17.6%). These gaps contribute to mixed attitudes, uncertainty, and hesitancy towards vaccination.

Conclusion:
Attitudes towards HPV vaccination among adolescent girls are mixed, with both positive experiences and significant gaps in awareness and pre-vaccination education influencing uptake.

Recommendations:
There is a need for strengthened health education programs targeting adolescents, increased involvement of parents, teachers, and healthcare workers, and improved communication strategies to foster positive attitudes and enhance HPV vaccine uptake.

Keywords: *Human papillomavirus (HPV), HPV vaccine uptake, adolescent girls, immunization, Kyenjojo District.*
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Background.
Cervical cancer ranks fourth as the most common cancer affecting women worldwide (WHO 2015). This report further adds that a large majority, estimated at 85%, are occurring in developing countries, with Africa being the most affected. In Uganda between 2010 and 2011, the prevalence of cervical cancer rose from 15000 to 33000 in the cancer institute (MOH, 2014). The major attributes to this high prevalence were related to failure of uptake of some of the available preventive measures, like screening and treatment services, due to lack of knowledge, poor attitudes, and limited awareness (National Cervical Cancer Coalition, 2016). The Uganda government policy (MoH, 2015) states that all girls aged between 9 and 13 years should be the primary target for the HPV vaccine if cervical cancer is to be managed. It's assumed that at this age, the adolescents have not indulged in sexual intercourse, and therefore vaccination would have a protective effect on them.

Vaccination has proven to be among the most effective interventions used in disease control (Levine et al, 2011). The approval of HPV vaccination has increased the possibility of eradicating cervical cancer in the near future. However, its intended purpose hangs in the balance as general attitudes and awareness by all stakeholders, but more so adolescent girls who are major holders, are still limited as the vaccine is new in Uganda, where people are

so embedded in their cultures and religious-related values, which pose a threat to the utilization of the vaccine (Larson al 2015). In order to ensure successful vaccination of the adolescent girls, attitudes need to be considered as an area of priority, as vaccination will be met with mixed reactions from the public. A strategy should be designed to bring all stakeholders together to improve attitudes that will bridge the existing gap and ensure effective use of the stipulated vaccination policies (UNICEF, 2015).

Acceptability and accessibility of the vaccine are influenced by a number of factors that directly impact decision-making, and this has left some adolescent girls pondering whether to take or not to take the vaccines (Songthapa et al 2012). Some studies report that in some countries where the vaccine is sold, accessibility is restricted to only those who have the money, thus decreasing its acceptance compared to countries where their governments purchase the vaccines and they are readily available for use without the use of money (Youth HPV programme, 2016).

Parental uncertainty about side effects of the vaccine, duration of protection that the vaccine offers, and above all, the fear that it will encourage their daughters to indulge in sexuality at a tender age, thinking that they are fully protected from all STDs (Lee, 2011). Parents are the closest people to these adolescent girls, and once they develop a negative attitude towards the HPV vaccine, their daughters are most likely to be influenced and could develop the same negative attitudes, which will greatly affect the utilization and sustainability of the vaccination (Gao et al 2014). Therefore, this study assessed attitudes towards HPV vaccine uptake among girls aged 9–13 years at Kyenjojo Primary School in Kyenjojo District.

Methodology.

Study area

The study was conducted in Kyenjojo Primary School, Kyenjojo district, which is approximately 174km from Mbarara town. It's between Kabarole district, 55km away to the east, and Kyegegwa district, 50 km to the west. The area was chosen because the school has a large number of pupils from whom the researcher sampled. Also, the area was chosen because the statistics in the district indicate that there is a low uptake of the HPV vaccine in Kyenjojo primary school, with only 50 out of 86 pupils within the age bracket receiving the vaccine (District records, 2017).

Study design.

The study was a cross-sectional design employing quantitative data collection methods. The study design was preferred because the data were collected at one point in time. This suited the researchers' limited time frame.

Study population.

The study respondents were young females aged 9-13 years and studying at Kyenjonjo Primary School.

Sample size determination

The sample size was calculated using Yamane's (1967:886) formula with a 95% confidence level and P = 0 .05, and it was attained within the selected time of the study.

n= N/ (1+ N (e) 2)

Where n=sample size, e=expected error (0.05), N will be the total population size

n=86/ [1+86(0.05)2] n=70.7. For convenience in data collection, a rounded figure of 70 respondents was considered.

Sampling procedure

The study used a simple random method to obtain the respondents until the required number was reached.

Data collection instruments

The research instrument was composed of a questionnaire. The questionnaire was designed by the researcher and translated into the local language, Rutooro, so as to enable those who do not understand English to be able to answer the questions accordingly. The research instrument had 16 questions and took approximately 15 minutes to answer. The instrument was formulated to obtain data in relation to the study objectives.

Data collection procedure

The data was collected using a researcher-administered questionnaire after obtaining consent from the headmaster and assent from the pupils. After the interview, the researcher thanked the respondent and answered any questions or clarified any issues not understood by the respondent.

Inclusion criteria

Young girls aged 9-13 who were willing to participate in the study had assented, and in primary four, as per the government policy regarding HPV vaccination.

Exclusion criteria

Those who were absent after consenting to participate in the study.

Quality control measures

To improve the validity of the data collected, quality control techniques were ensured. This included training research assistants, pretesting questionnaires, and translation of the research instrument into Rutooro.

Validity.

Pretesting of the research tool was done among randomly selected pupils in the study area, but was not to be among the respondents. Necessary adjustments were made before full data collection was commenced.

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Reliability
This was ensured by using a large calculated sample size. Also, the researchers administered the same questionnaire to all respondents. The questionnaire was translated into Rutooro to avoid discrepancies.

Data management
The data was sorted out according to the variables. Questionnaires were kept safe under a key and lock to avoid losses and mishandling, as they were to be used for reference purposes. They were only accessed by the principal investigator.

Data analysis
Data was cleaned and entered into SPSS version 2016. Descriptive analysis was generated, and data were presented in the form of tables, graphs, and pie-charts.

Ethical consideration
Ethical approval was sought from the MUST Faculty Research Committee (FRC). Permission to conduct the research in the study area was received through a letter from the Head of Nursing Department, which introduced me to the leadership of the primary school. Informed consent was obtained from the headmaster, and assent from individuals who were willing to participate in the study. Confidentiality was ensured during the interview as no names were used; only codes and the information generated were kept under key and lock, and only accessed by the researcher.

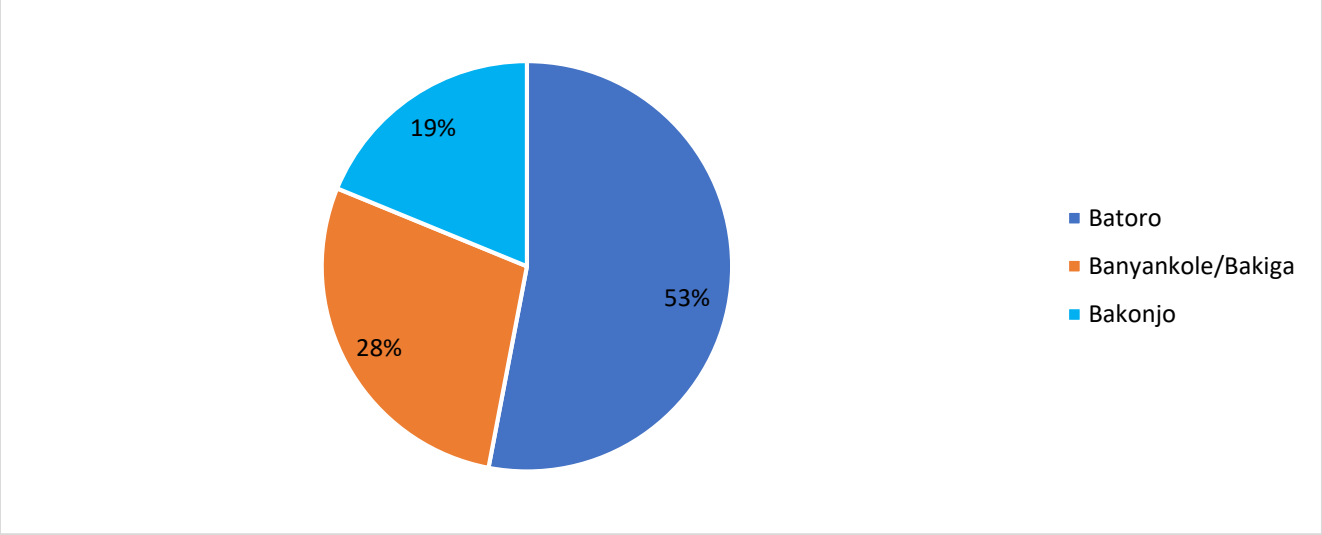
Results.
Demographic characteristics of the respondents

Table 1: Distribution of respondents according to their ages (n=70)

Age (year)	Percentage
9	10.3%
10	9.7%
11	9.0%
12	21.7%
13	49.3%

The findings in Table 1 show that the majority of the respondents 49.3% were aged 13 years, and the minority of the respondents were aged 11 years.

Figure 1: Distribution of the respondents according to their tribe



The majority of respondents were Batoro (53%), as shown in the figure.

Table 2: Distribution of respondents according to their religious affiliation

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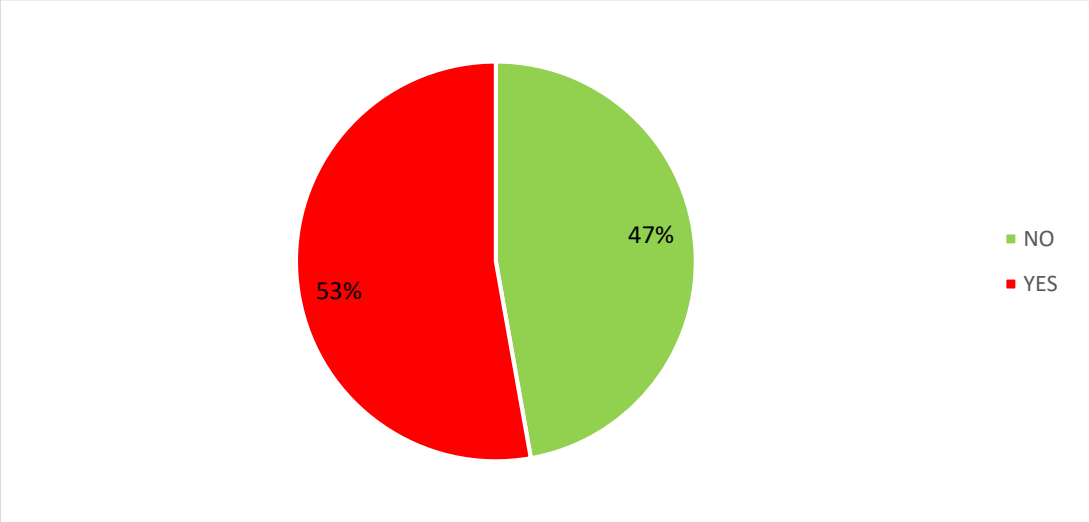
Religious affiliation	Percentage
Catholic	36.9%
Protestant	40.2%
Moslem	20.1%
Others	2.8%

Table 2 shows that the majority of respondents (40.2%) were affiliated with the protestant faith.

Attitude of the respondents regarding the HPV vaccine

Figure 3: Distribution of respondents in accordance with vaccination using the HPV vaccine



The pie chart above shows that the majority of the respondents 52.8% had been vaccinated with the HPV vaccine.

Table 3: Distribution of respondents according to where they received the HPV vaccine

Place of Vaccination	Percentage of Respondents
School	39.3%
Community	26.4%
Health Center	20.1%
Others	14.2%

From table 3, the majority of the respondents 39.3% were vaccinated at school, and only14.2% of the respondents received the HPV vaccine during other health-related programs/events.

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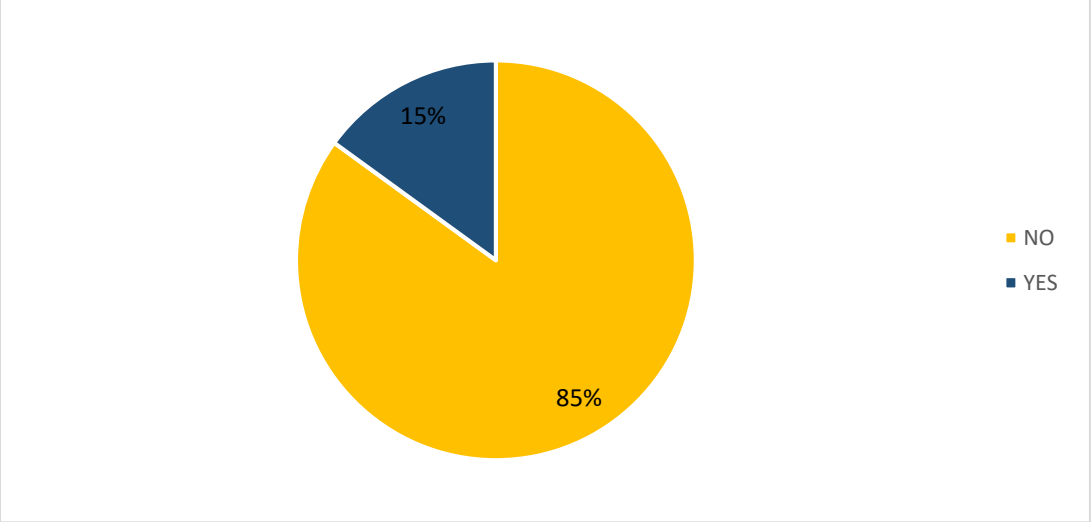
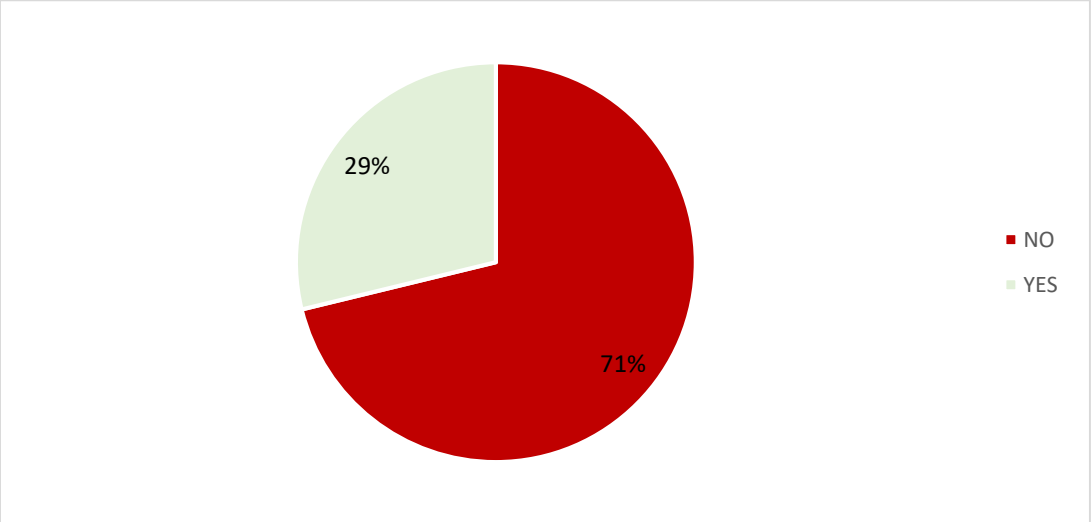
Figure 4: Distribution of respondents according to the development of side effects upon vaccination.



The majority of the respondents, 85%, did not develop any side effects after receiving the HPV vaccine.

Figure 5: Distribution of respondents in accordance with receiving health education before being immunized with the HPV vaccine.



The majority of the respondents (71%) reported that they did not receive health education before being immunized with the HPV vaccine.

Table 4: Distribution of respondents according to the source of health education

Place of Vaccination	Percentage of Respondents
Parent	14%
Health worker	17.6%
Teachers	22.4%
Friends	17.3%
Others	28.7%

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From the results displayed in Table 4, 28.7% of the respondents got health education from different sources other than parents, health workers, teachers, and friends.

Discussion of results.

Attitude of the respondents

The largest number of respondents (52.8%) were vaccinated with the HPV vaccine (fig 8), and the remaining (47.2%) is still a very high proportion to be ignored, as this will increase the prevalence of cervical cancer among the unvaccinated young adolescent girls in the future and further signifies the low uptake of the HPV vaccine. Although there may be other reasons that have resulted in having a negative attitude towards accepting the HPV vaccine, those other reasons lower the uptake of the vaccine and pause an increase in cervical cancer cases in the near future. These findings agree with (UNICEF 2015) report which indicated that, attitudes will be met with mixed reaction from the public and therefore a strategy to bring together all stake holders in order to bridge the gaps and improve on the attitudes to ensure increased uptake of the HPV vaccine among the adolescent girls be devised thus leading to decreased prevalence of cervical cancer in the near future.

The majority of the respondents (39.3%) were vaccinated at school. Some adolescent girls were re-vaccinated because means of verification was not easily accessible for those vaccinated outside school, for those who are subjected to be revaccinated, they end up developing a very big bias towards the vaccination program while those who dodge to be vaccinated end up being defaulters and lower the uptake of HPV vaccine and raise the prevalence of cervical cancer in the near future. These findings are in line with findings of Songthapa et al (2012), which indicate that acceptability and accessibility of the vaccine are influenced by a number of factors that directly impact decision-making, and this has left adolescents pondering whether to agree to being re-vaccinated or not. These experiences spill over to their other friends, creating an even more negative attitude towards uptake of the HPV vaccine.

In an attempt to draw the relationship between health education before vaccination, source of health, and development of side effects respectively, the majority of the respondents, 71.2% (fig 10), were not adequately health educated before being vaccinated. The majority of the respondents, 28% (table 7), did not develop any adverse effects following immunization with the HPV vaccine; however, 15% report some adverse effects, but pain at the injection site was more pronounced. Being informed about the vaccine in terms of importance and possible side effects, it helps to dispel false information, especially when the source of the information is very credible, for example, from health workers. The information should be packaged in small amounts with key messages that young adolescent girls need to know and in the simplest language possible, so that they fully understand. Enhanced understanding through information that is accurate from all key stakeholders, like parents, teachers, and health workers, is helpful in that such a collective effort enhances a positive attitude towards uptake of the HPV vaccine, thus reducing future cervical cancer prevalence. These findings are in line with the findings of (Goa et al, 2014) which stated that parents and teachers are the closest people to these adolescent girls and once they develop the same negative attitude towards the HPV vaccine their daughters for the case of parents and pupils for the case of teachers are most likely to be influenced and could develop the same negative attitudes which in return affect uptake of the vaccine however with regular information through health education from a credible source to all stake holders, attitudes will be improved thus enhancing uptake of the vaccine.

Conclusion

The study reveals that attitudes toward HPV vaccination among girls aged 9–13 years at Kyenjojo Primary School are generally mixed, with a moderate level of vaccine uptake but significant gaps in awareness and pre-vaccination health education. While a proportion of respondents had received the vaccine and reported minimal side effects, the absence of consistent and reliable health education, particularly from parents, teachers, and health workers, has contributed to uncertainty, misconceptions, and varying perceptions about the vaccine. These findings suggest that attitude alone, when not supported by adequate information and stakeholder engagement, can hinder optimal vaccine acceptance and completion.

Limitation of the study

These included financial constraints, for example, money for printing questionnaires while doing the study. Time constraints as it needed balancing a number of activities.

Recommendation.

The MOH should strengthen and scale up school-based HPV vaccination programs by ensuring consistent vaccine supply, clear vaccination schedules, and standardized guidelines. It should also develop and disseminate simplified Information, Education and Communication (IEC) materials targeting adolescents, parents, and teachers to improve understanding and acceptance of the vaccine.

The district health office should organize regular outreach and sensitization campaigns in schools and communities to educate pupils and parents about the benefits and safety of the HPV vaccine. Health teams should actively monitor vaccination coverage and follow up on defaulters to ensure completion of all required doses.

Health workers should provide clear, consistent, and age-appropriate health education before and during vaccination. They should address myths and misconceptions, explain

possible side effects, and reassure pupils and parents to build trust and confidence in the vaccine**.**

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Thanks to my family.

Lastly, special thanks to my classmates for the teamwork spirit that emerged from the very beginning.

List of Abbreviations.

HPV – Human Papillomavirus
MOH – Ministry of Health
WHO – World Health Organization
CDC – Centers for Disease Control and Prevention
SPSS – Statistical Package for Social Sciences
IEC – Information, Education and Communication
FRC – Faculty Research Committee
MUST – Mbarara University of Science and Technology
HIV/AIDS – Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
TB – Tuberculosis
UNICEF – United Nations Children's Fund

Informed Consent:

Written informed consent was obtained from all participants prior to their inclusion in the study. Participants were informed about the purpose of the study, procedures involved, potential risks and benefits, and their right to withdraw at any time without penalty.

Source of funding.

The study was not funded.

Conflict of interest.

There is no conflict of interest.

Availability of data.

Data used in this study are available upon request from the corresponding author.

Authors contribution.

CA designed the study, conducted data collection, cleaned and analyzed data, and drafted the manuscript.

JNK supervised all stages of the study from conceptualization of the topic to manuscript writing and submission.

Author's biography.

Carolyn Ahurra is a pediatric clinical nurse with a Master's degree in Paediatric Clinical Nursing. She is passionate about improving child health through quality, evidence-based care, with a focus on managing childhood illnesses and promoting better health outcomes in Uganda.

Jane Namagga Kasozi is a research supervisor at the Faculty of Medicine, Department of Nursing, Mbarara University of Science and Technology.

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