East African Journal of Health and Science, Volume 9, Issue 1, 2026
Article DOI: https://doi.org/10.37284/eajhs.9.1.4438

East African Journal of Health and Science
eajhs.eanso.org
Volume 9 Issue 1, 2026
Print ISSN: 2707-3912 | Online ISSN: 2707-3920
Title DOI: https://doi.org/10.37284/2707-3920

EAST AFRICAN NATURE & SCIENCE ORGANIZATION

Original Article

Cervical Cancer Knowledge and Health System Factors in HPV Vaccine Acceptance Among Fathers in Uasin Gishu County

Noelle Sutton[1], Prof. Josephat Nyagero, PhD[1] & Prof. Joachim Osur, PhD[1]*

[1] Amref International University, P. O. Box 27691-00506, Nairobi, Kenya.
*Author for Correspondence ORCID ID; https://orcid.org/0009-0007-2680-0419; Email: noellesutton544@gmail.com.

Article DOI: https://doi.org/10.37284/eajhs.9.1.4438

Date Published:

02 February 2026

Keywords:

HPV vaccine, Cervical cancer, Vaccine acceptance, Fathers' Acceptance, Health system factors, Preventive health behaviour, Immunisation uptake, Parental decision-making, Adolescent girls.

ABSTRACT

Background: Human papillomavirus infections are transmitted sexually and can be prevented by giving HPV vaccines to adolescent and pre-adolescent girls before their sexual debut. Kenya launched the HPV vaccination as part of the National Routine Immunization Initiative in October 2019. This has been confronted with several problems, including parental opposition, particularly from men. The main objective is to assess the factors that influence fathers' acceptance of the use of the Human papillomavirus vaccine by their daughters. **Methods:** A descriptive cross-sectional study design was adopted. The sample size was 375, 153 in Kesses and 222 in Kapseret sub-counties. A total of 9 in-depth interviews and 8 key informant interviews were conducted. The participants were fathers with daughters aged between 10 and 19 years who gave consent. A multi-stage sampling was adopted. Data collection was done using interviewer-administered questions and key informant interviews. SPSS version 27 was used for data analysis. Descriptive statistics, inferential statistics, and logistic regression analysis were done, and the significance was 95% with a p-value of 0.05. The qualitative data were recorded and transcribed, and key themes were identified. **Results:** Factors significantly associated with acceptance at bivariate level were the knowledge of the HPV vaccine ($p<0.001$), knowledge of cervical cancer ($p<0.001$), recommendations from HCWs ($p=0.045$), Government Policy ($p=0.024$) and HPV vaccine availability (p-0.002) Knowledge of HPV transmission, risk factors, prevention of cervical cancer and persons at risk of infection was very low. **Conclusion and recommendations:** HPV vaccine acceptance among fathers of adolescent daughters is still very low. Public health awareness on the HPV vaccine should focus more on fathers as the key primary decision makers.

Article DOI: https://doi.org/10.37284/eajhs.9.1.4438

APA CITATION

Sutton, N., Nyagero, J., & Osur, J. (2026). Cervical Cancer Knowledge and Health System Factors in HPV Vaccine Acceptance Among Fathers in Uasin Gishu County. *East African Journal of Health and Science*, *9*(1), 200-214. https://doi.org/10.37284/eajhs.9.1.4438

CHICAGO CITATION

Sutton, Noelle, Josephat Nyagero and Joachim Osur. 2026. "Cervical Cancer Knowledge and Health System Factors in HPV Vaccine Acceptance Among Fathers in Uasin Gishu County". *East African Journal of Health and Science* 9 (1), 200-214. https://doi.org/10.37284/eajhs.9.1.4438

HARVARD CITATION

Sutton, N., Nyagero, J., & Osur, J. (2026). "Cervical Cancer Knowledge and Health System Factors in HPV Vaccine Acceptance Among Fathers in Uasin Gishu County", *East African Journal of Health and Science*, 9(1), pp. 200-214. doi: 10.37284/eajhs.9.1.4438

IEEE CITATION

N., Sutton, J., Sutton & J., Osur "Cervical Cancer Knowledge and Health System Factors in HPV Vaccine Acceptance Among Fathers in Uasin Gishu County", *EAJHS*, vol. 9, no. 1, pp. 200-214, Feb. 2026.

MLA CITATION

Sutton, Noelle, Josephat Sutton & Joachim Osur. "Cervical Cancer Knowledge and Health System Factors in HPV Vaccine Acceptance Among Fathers in Uasin Gishu County". *East African Journal of Health and Science*, Vol. 9, no. 1, Feb. 2026, pp. 200-214, doi:10.37284/eajhs.9.1.4438.

INTRODUCTION

Every year in the United States, approximately 13,000 women are newly diagnosed with cervical cancer, and about 4,000 women die from it. Hispanic women have the highest incidence of cervical cancer, while Black women experience the highest mortality rates (CDC, 2019)

East Africa records the highest burden of cervical cancer globally, with an estimated 52,633 new diagnoses and 37,017 deaths (Deo et al., 2022). HPV types 16 and 18 are the most dangerous, with type 16 being the most prevalent in East Africa, followed by types 18 and 52 (Bruni et al., 2019).

In Kenya, both cervical cancer cases and related deaths continue to increase. The disease represents 19.6% of all cancers affecting women in the country. Data from the NCI show that stage 3 cervical cancer makes up 31% of all reported cases. Uasin Gishu County ranks among the top 20 counties with the highest number of cervical cancer incidences (National Cancer Institute of Kenya [NCIK], 2022)

Men's awareness of cancer of the cervix and its risk factors significantly improves the health-seeking behaviours of their partners (Adewumi et al., 2019). Kim et al. (2018) stated that men did not accurately comprehend the causes of cervical cancer. They did not know prevention practices for the disease, and generally had no interest in the disease. The same research study found that men's situational awareness influenced performance and decision-making. Those who stayed at the situational perception level did not take any action concerning cervical cancer prevention. Wong (2009) indicated that men were not aware of HPV and its relation to cervical cancer; when males were given information on HPV and its relation to cervical cancer, most of them supported the use of the vaccination to protect their wives and daughters from cervical cancer. Research done by Lin et al. (2022) among fathers of primary school children found that regarding HPV and HPV vaccines, 49.7% had a higher level of knowledge, while 50.3% had a lower level of knowledge.

Binka et al. (2019) observed that men had no information on the causes, risk factors, and symptoms of cervical cancer. He noted that those who had some information had obtained it from the healthcare providers following the diagnosis of their partners. Furthermore, the information was only about the nature of the disease. Men without a proper understanding of the disease will be hesitant to support their partners, which may cause

Article DOI: https://doi.org/10.37284/eajhs.9.1.4438

separation or divorce (Binka et al., 2019). The study's results are consistent with those done in Nigeria, where Men have inadequate knowledge regarding cervical cancer. Most men had never heard of cervical cancer and had no information on its causes and risk factors (Okedo-Alex et al., 2020). Men's ignorance of cancer of the cervix may prevent women from seeking treatment (Story et al., 2016).

In Uganda, Moses et al. (2018) showed that the men had insufficient information on cancer of the cervix and Human Papillomavirus, which aligns with the studies done in Ghana (Binka et al., 2019) and Nigeria (Okedo-Alex et al., 2020). Moses et al. (2018) also suggested that females acknowledged that male engagement was critical to the success of any cancer of the cervix prevention strategies. Men were ready to help their partners with reproductive health issues, but there is still confusion about disease transmission and treatment (Moses et al., 2018).

A study carried out in Kendu Bay, Kenya, by Adewumi et al. (2019) pointed out that men did not support their spouses in undertaking screening due to insufficient knowledge of cervical cancer. According to Rosser et al. (2014), Men wanted to know more about cervical cancer and how it relates to them. Adewumi et al. (2019) found that the scarcity of information about male partners' cancer of the cervix prevention may have had a detrimental impact on service uptake, particularly for women seeking permission/financial assistance to attend screening and treatment. According to Kolek et al. (2022), males, on average, showed less awareness than females. Two studies done in America (Fu et al., 2017; Nan et al., 2018) indicated that confidence in information about health from government organisations is a strong predictor of vaccine adoption and perceived vaccine efficacy. A study done in Brazil (Mendes Lobão et al., 2018) found that trust in vaccines and the National Immunisation Programs were significantly correlated to parental acceptance. Lee Mortensen et al. (2015) found that parents in nations with active immunisation structures were more likely to believe in the value of NIPs. Still, those in nations with policies require more information from healthcare professionals and public health authorities. In a study done among Latino fathers by Ana Cristina Lindsay et al. (2020), they stated that they would support HPV for their children receiving the vaccine if their child's primary healthcare professional advised it. According to a study by Lindsay et al. (2021), nearly all of the fathers who participated in the survey indicated their trust in medical professionals and said they agreed with their recommendations for the care of their children, including vaccinations.

Antinyan et al. (2021) concluded that in LMICs, citizens have a low level of trust in formal institutions, especially the healthcare system. Citizens with low trust in formal institutions are more likely to engage in various uncooperative conduct, which can cause significant difficulty in government initiatives (Antinyan et al., 2021). According to Nabirye et al. (2020), in Uganda, low HPV vaccine adoption was linked to inadequate knowledge and educational and communication resources on the HPV vaccine in health institutions, schools and community settings.

Recommendation/Advice from Healthcare Practitioners

Smolarczyk et al. (2022) found that most parents chose to have their children receive the vaccine after a doctor advised it. This is concurrent with a study done among Central American Immigrant parents, where the majority (90%) of those who had unvaccinated children expressed a readiness to vaccinate them against HPV if their doctor advised it (Lindsay et al., 2020).

In Zambia, Kucheba et al. (2020) showed that the HPV vaccine's acceptability was influenced by people's faith, which influenced the HPV vaccine's acceptability among doctors. Their data implied that people accepted the vaccine because it was doctor-approved and safe. The study linked this to individuals' high confidence level in medical

Article DOI: https://doi.org/10.37284/eajhs.9.1.4438

professionals, whom they perceive to be better educated about health issues and feel comfortable entrusting with their well-being. In Morocco, Mouallif et al. (2014) found that 67% of fathers would consent to their daughters getting vaccinated if it was advised by a doctor.

In Lira District, Uganda, Kisaakye et al. (2018) found that adolescents who had been advised by a medical professional to get the HPV vaccine or who were members of the community health team were more likely to get it. This is concurrent with another study by Donahue et al. (2015), which revealed that the influence of a medical professional's advice for HPV vaccination was depicted to be a strong predictor of HPV vaccine initiation.

According to Nabirye et al. (2020), having proper information from a healthcare provider enhanced vaccine uptake significantly and having proper information from a healthcare provider significantly enhanced vaccine uptake. In previous studies, receiving accurate information from a healthcare professional greatly increased vaccine uptake (Marshall et al., 2007). According to Omondi Ogutu and James Machoki M'Imunya (2011), several participants stated that they could not trust doctors with their daughters and did not believe vaccination was necessary.

Working caregivers' vaccination decisions are complicated by the long waiting period, according to the study (Tene-Alima Essoh et al., 2023). Caregivers saw the expense of travelling from their homes to health centres as a key impediment, resulting in delays, missed appointments and even refusal of immunisation (Tene-Alima Essoh et al., 2023). According to Tene-Alima Essoh et al. (2023), the caregivers regarded HCWs' behaviour in the facilities as off-putting. Many were rude, and their attitudes made returning for subsequent vaccine doses difficult.

Study Objectives

- To assess the role of knowledge of cervical cancer as a contributor to HPV vaccine acceptance among fathers in Uasin Gishu County
- To determine the role of health system factors in HPV vaccine acceptance among fathers of adolescent daughters.

METHODS

Study Design and Period

Community-based cross-sectional survey and qualitative interviews were done in Kesses and Kapseret sub-counties in Uasin Gishu county, Kenya, among fathers with adolescent daughters aged 10 to 19 years from January 2024 to February 2024.

Sample Size Determination

The sample size for this study was determined using the Cochran formula for estimating proportions at a 95% confidence level. An assumed HPV vaccine acceptance prevalence (p) of 50% was used to maximise variability, with a margin of error (e) set at 5%. The critical value for a 95% confidence interval (Z) was 1.96. Based on these parameters, the calculated minimum sample size was 385 participants.

In practice, 375 fathers were successfully interviewed and included in the analysis, representing a response rate of 97.4%. To ensure proportional representation across the study locations, sample allocation was based on sub-county population sizes. The total population of the study area was 173,951, with Kesses contributing 74,301 residents and Kapseret 99,650 residents. Proportional allocation yielded 153 respondents from Kesses and 222 respondents from Kapseret.

This proportional sampling approach ensured that the sample reflected the distribution of the target population across sub-counties, enhancing the external validity of the findings.

Article DOI: https://doi.org/10.37284/eajhs.9.1.4438

Sampling Strategy

A multi-stage sampling was adopted to choose the study location and respondents.

Uasin Gishu County was chosen purposively based on the findings of previous studies conducted in the county (Mabeya et al., 2018; Vermandere et al., 2014) that showed low vaccine uptake (39.1%), which was significantly attributed to male (fathers and male guardians) objections (p-value 0.04). Kapseret sub-county, with an urban population, and Kesses sub-county, with a rural population, were purposively selected for their diverse economic status and ethnic groups. Proportional sampling determined the number of fathers to be interviewed in each sub-county.

Rural and urban households were purposively selected to find fathers with daughters aged 10–19. The researcher, with a Community Health promoter, identified eligible households and interviewed one father per household. Eight key informants were selected purposively, and nine fathers were randomly chosen for in-depth interviews using computer-generated sampling from the initial survey.

Study Variables

The study aimed to assess fathers' acceptance of the HPV vaccine for their adolescent daughters and the socio-demographic factors influencing this. The dependent variable was vaccine acceptance, while the independent variables were fathers' knowledge of cervical cancer and the health system factors.

Data Collection

Data was collected using interviewer-administered questionnaires, key informant interviews, and in-depth interviews. Three research assistants were trained by the lead investigator on study tools, ethics and administering questions to prevent bias. Participants were given an information sheet, and those who agreed signed a consent form before the interview.

Data Analysis

The collected data was cleaned for errors, coded and entered into SPSS version 27.

Key informant and in-depth interviews were recorded, transcribed non-verbally into Word documents and analysed. Codes were merged into sub-themes, then themes, which were verified and reported in the study findings.

Ethical Consideration

The study was approved by the Amref Ethical and Scientific Review Committee (ESRC) (ref P1554-2023). The research proposal was also approved by NACOSTI and the Uasin Gishu County administration.

Participants were informed that participation was voluntary and provided written consent. Questionnaires were assigned unique codes to ensure anonymity and confidentiality, with no names recorded.

RESULTS

HPV Awareness and Knowledge

Slightly more than half of the respondents, n=198 (52.8%), had heard about the Human Papillomavirus. Radio n=223 (66.0%) was the most prevalent source of information on the Human Papillomavirus. As shown in Table 6, most respondents, n=202 (53.9%), had poor knowledge of the Human Papillomavirus. According to the chi-square test, there is no significant association (p-0.266) between fathers' HPV knowledge and HPV vaccine acceptance for their adolescent daughters.

Article DOI: https://doi.org/10.37284/eajhs.9.1.4438

Table 1: Sources of HPV Information, Vaccination and Cervical Cancer *(Multiple Response)*

Source of Information	Responses	
	Frequency	%
HPV		
Radio	223	66.0
Television	147	43.5
Neighbours/Friends	84	24.9
Health Officers	41	12.1
Church/Mosque	8	2.4
Cervical Cancer		
Radio	142	59.4
Television	95	39.7
Neighbours/Friends	62	25.9
Health Officers	28	11.7
Church/Mosque	3	1.3
HPV Vaccine		
Radio	127	61.4
Television	80	38.6
Neighbours/Friends	64	30.9
Health Officers	19	9.2
Church/Mosque	3	1.4

Source: *Researcher 2024*

HPV Vaccine Awareness and Knowledge

Most respondents (63.7%) had heard of the HPV Vaccine. Most respondents (43.2%) had poor knowledge of the Human Papillomavirus vaccine. The chi-square tests showed a significant association, p-<0.001, between fathers' knowledge of the HPV vaccine and HPV vaccine acceptance for their adolescent daughters – Table 1.

Cervical Cancer Awareness and Knowledge

Most respondents, n=338 (90.1%), had heard of cervical cancer, and a majority of them (29.6%) learned about it from the radio. Most respondents had poor knowledge of cervical cancer, with n=197 (52.5%) scoring one or zero. The chi-square test indicated a significant association (p<0.001) between fathers' knowledge of cervical cancer and HPV vaccine acceptance for their adolescent daughters – Table 7.

Table 2: Influence of HPV, Vaccination and Cervical Cancer Knowledge on HPV Acceptance

Knowledge Scores	Is your daughter vaccinated? (%)		Df	P value
	No	Yes		
HPV				
Poor (n=202)	65.8	34.2	3	.266
Average (n=65)	67.7	32.3		
Good (n=66)	54.5	45.5		
Excellent (n=42)	57.1	42.9		
HPV Vaccine				
Poor (n=162)	75.3	24.7	2	**<.001**
Average (n=59)	62.7	37.3		
Good (n=153)	50.6	49.4		

Article DOI: https://doi.org/10.37284/eajhs.9.1.4438

Knowledge Scores	Is your daughter vaccinated? (%)		Df	P value
	No	Yes		
Cervical Cancer				
Poor (n=197)	72.1	27.9	2	**<.001**
Average (n=100)	59.0	41.0		
Good (n-78)	46.2	53.8		

Source: *Researcher 2024*

Additionally, effective communication channels play a pivotal role in disseminating information about the HPV vaccine to fathers in Uasin Gishu County. A Community Health Promoter stated that:

> "*It is good to organise training for the community, both women and men, so that they get educated. They can use platforms to brief them, even at a funeral or during a wedding, because getting those people is not easy. We call them, but it is not easy. They all come. If it is at a burial, they will be found, and they will listen at weddings*."

Seeking information from reliable sources, including healthcare providers and credible educational materials, demonstrates a willingness to engage with preventive healthcare measures. Encouraging and supporting fathers in their information-seeking endeavours fosters a sense of empowerment and responsibility in safeguarding their daughters' health through vaccination. A participant (P4- Kapseret) stated that:

> "*It is good when the campaigns come, the fathers are mostly called. It can be beneficial if they are educated and do not ignore it, as they can also discuss it with their children. Children do not ignore it because they can also talk to their fathers and believe in their fathers a lot now. They must help the mothers so that the children can believe what is being said."*

Fathers' curiosity and proactive information-seeking behaviours are crucial in shaping their attitudes towards the HPV vaccine. A participant (P1- Kesses) stated,

> *"I heard from the news, and I also wanted to know more; I followed up on the internet, wanting to know what it does."*

Influence of Health System Factors

Most respondents, n=199 (53.1%) and n=199 (53.1%), disagreed that long waiting time at the hospital can influence their vaccination decisions for their daughters. Most respondents (n=315, 84%) agreed that a recommendation from a health practitioner can influence their vaccination decision. More than half of the respondents (n=253, 67.5%) agreed that poor quality of service offered by healthcare workers can influence vaccination decisions for their adolescent daughters. The majority of the respondents, n=244 (65.1%), agreed that service providers' poor attitude can influence their daughters' vaccination decisions. Most participants (n=207, 55.2%) disagreed that expenses in terms of time and travel can influence the vaccination decisions for their adolescent daughters. The majority of the participants, n=324 (86.4%), agreed that recommendations from the government (policy) can influence their vaccination decisions for their adolescent daughters. Most of the respondents, n=255 (68.0%), agreed that the availability of the HPV vaccine in their community can influence their vaccination decisions for their daughters.

From Table 8, the chi-square tests show that there is no significant association between long waiting times at the hospital, poor quality of service (p-0.215), poor attitude of service providers (p-0.637), expense in terms of time and distance (p-0.639), and fathers' acceptance of the HPV vaccine for their adolescent daughters. Conversely, there is a

Article DOI: https://doi.org/10.37284/eajhs.9.1.4438

significant association between recommendations from HCWs (p-0.014), recommendations by government policy (p-0.024, the HPV vaccine being readily available (p-0.002) and fathers' acceptance of the HPV vaccine for their adolescent daughters.

Table 3: Relationship between Health System Factors and Vaccination Acceptance

Health System Factor	Is your daughter vaccinated? (%)		Df	P-Value
	No	Yes		
Long Waiting time			2	.313
Strongly Disagree/ Disagree (n=199)	64.3	35.7		
Neutral (n=39)	71.8	28.2		
Strongly agree/ Agree (n=137)	59.1	40.9		
Recommendation From HCW			2	**.014**
Strongly Disagree/ Disagree (n=46)	82.6	17.4		
Neutral (n=14)	64.3	35.7		
Strongly agree/ Agree (n=315)	60.3	39.7		
Poor Quality of Service			2	.215
Strongly Disagree/ Disagree(n=93)	58.1	41.9		
Neutral (n=29)	75.9	24.1		
Strongly agree/ Agree (n=253)	63.6	36.4		
Poor attitude of Service Providers			2	.637
Strongly Disagree/ Disagree (n=103)	63.1	36.9		
Neutral(n=28)	71.4	28.6		
Strongly agree/ Agree (n=244)	62.3	37.7		
Expense (time and distance)			2	.639
Strongly Disagree/ Disagree (n=207)	62.8	37.2		
Neutral (n=31)	71.0	29.0		
Strongly agree/ Agree(n=137)	62.0	38.0		
Recommendation by the Government (Policy)			2	**.024**
Strongly Disagree/ Disagree (n=27)				
Neutral (n=24)	70.4	29.6		
Strongly agree/ Agree (n=324)	87.5	12.5		
	60.8	39.2		
HPV Vaccine Readily available			2	**.002**
Strongly Disagree/ Disagree (n=72)	73.6	26.4		
Neutral (n=48)	79.2	20.8		
Strongly agree/ Agree (n=255)	57.3	42.7		

Source: Researcher 2024

The accessibility and quality of healthcare services significantly influence fathers' acceptance of the HPV vaccine for their daughters in Uasin Gishu County. Limited healthcare infrastructure, campaigns and resources pose substantial barriers to accessing vaccination services, hindering timely access to vaccination. A participant (P3- Kapseret) stated,

> "It *is a long time ago, it was in 2019, up to now there is none, it depleted. To mean that girls who are of age should get the vaccine. Where will you get the vaccine, and no one is giving information?"*

Further, healthcare provider attitudes and practices play a crucial role in shaping fathers' perceptions of vaccination, with negative experiences or lack of provider support impacting vaccine acceptance.

Article DOI: https://doi.org/10.37284/eajhs.9.1.4438

Model of Factors Influencing Fathers' Acceptance of the HPV Vaccine

Logistic regression was utilised to examine the interactions between the independent and dependent dichotomous variables. All variables found to be significant at the bivariate level were included in the model – see Table 9. The fitness of the model was evaluated using the Chi-square statistic. The Chi-square value was 54.238 with a p-value of <.001. This proves the final model's correlation between the dependent and independent variables. When the Hosmer and Lemeshow test was done, the Chi-square value was 4.980 with 8 degrees of freedom and a p-0.1760, indicating that the test is insignificant; thus, the model is appropriate for the data. Further, the pseudo-R-square measures are Cox and Snell (0.135) and Nagelkerke's (0.184). The model accounts for 13.5% to 18.4% of the variance. The overall classification accuracy is 67.9%.

Further, geographical location (Sub-County) is a significant predictor (p-0.000) of fathers' acceptance of the HPV vaccine for their adolescent daughters. Being from the Kapseret sub-county, the odds of fathers' HPV vaccine acceptance for their adolescent daughters decrease. The odds of acceptance are about 40.8% for fathers in the Kapseret sub-county. Being employed/Self-employed is a significant predictor (p-0.043) of fathers' acceptance of HPV vaccines for their adolescents. Being employed/self-employed increases the odds of fathers' vaccine acceptance by 49.8%. Knowing that HPV vaccines is a significant predictor (p-0.007) of fathers' acceptance of the HPV vaccine for their adolescent daughters. Knowing HPV vaccines increases the odds of fathers' HPV vaccine acceptance for their adolescent daughters by 53.1%. Finally, in the model, none of the Health System Factors were significant predictors of fathers' acceptance of HPV vaccines for their adolescent daughters.

Table 4: Model of Factors Influencing HPV Vaccine Acceptance among Fathers

					95% CI for EXP(B)	
	B	**df**	**(P value)**	**Exp(B)**	**Lower**	**Upper**
Sub-County	.895	1	**.000**	.408	.253	.660
What do you do for a living?	.916	1	**.043**	2.498	1.028	6.072
Cervical Cancer scores	.201	1	.269	1.222	.856	1.746
HPV vaccine Scores	.426	1	**.007**	1.531	1.123	2.087
Recommendation from HCW	.614	1	.076	1.848	.939	3.639
Recommended by the Government	.638	1	.078	.528	.260	1.075
The HPV vaccine is readily available	.098	1	.653	1.102	.721	1.686
Constant	**-2.460**	**1**	**.033**	**.085**		

Source: *Researcher 2024*

DISCUSSION

This study found that the majority (n=198, 52.8%) of the respondents had heard about the Human Papillomavirus but were neither aware of how it was transmitted (n=295, 78.7%) nor that HPV infection can cause cancer of the cervix (n=236, 62.9%). This concurs with a study done by Kim et al. (2018), where men did not accurately comprehend the causes of cervical cancer, and also with a study done in Uganda by Moses et al. (2018), which showed that the men had insufficient information on cancer of the cervix and Human Papillomavirus. The findings also agree with a study in Ethiopia by Mihretie et al. (2022), where parents' knowledge of the HPV vaccine was low.

The study also found that the majority of the participants were aware of cervical cancer and knew that it was preventable through vaccination against HPV. This is in contrast to a study done in Nigeria by Okedo-Alex et al. (2020), which indicated that most men had never heard of cancer of the cervix

Article DOI: https://doi.org/10.37284/eajhs.9.1.4438

and had no information on its causes and risk factors. This difference could be attributed to how HPV vaccine awareness and sensitisation are done in the two countries.

The study found significant associations between knowledge and awareness of HPV, HPV Vaccines ($p<.001$), prevention of Cervical Cancer ($p<0.001$) and HPV vaccine acceptance among fathers of adolescent daughters. These results are concurrent with those of Adewumi et al. (2019), which indicated that men's awareness of cervical cancer and its risk factors significantly improves the health-seeking behaviours of their partners. These results also agree with a study done by Mihretie et al. (2022) that possessing a good understanding of the vaccine against HPV (AOR = 3.30, 95% CI = 2.21, 4.93) was significantly associated with the readiness to receive the vaccine against HPV. The findings also agree with those of Akinleye et al. (2020) that knowledge of HPV vaccination ($p < 0.001$) was significantly associated with parents' acceptance of the vaccination against HPV for their children. In contrast, a study done by Anyaka et al. (2024) found that there were no significant associations between parental knowledge of HPV, cervical cancer and the HPV vaccine and the acceptance of HPV vaccination for children. This can be due to the high number of respondents, 98.8% in the study in Nigeria, having low knowledge of HPV and cancer of the cervix, but are very willing to accept the vaccine against HPV for their daughters.

Role of Health System Factors on HPV Vaccine Acceptance

The study found that most respondents agree that a recommendation from a health practitioner can influence their vaccination decision. This aligns well with research findings by Smolarczyk et al. (2022), which found that most parents chose to have their children receive the vaccine after a doctor advised it and also a study done by Lindsay et al. (2020), where the majority of the parents with unvaccinated daughters expressed a readiness to vaccinate them against HPV if their doctor advised it. Similarly, a study by Della Polla et al. (2020) indicated that the most cited reason among the non-vaccinated was that they had no doctor's advice to have their child vaccinated.

The research revealed that most of the participants agree that the poor quality of service offered by the healthcare workers and the poor attitude of service providers can influence their vaccination decision for their adolescent daughters. There were significant associations between poor quality of service offered by the HCWs, poor attitudes of the service providers and acceptance among fathers of the HPV vaccine for their daughters. This coincides with Tene-Alima Essoh et al. (2023), whose findings indicated that the caregivers regarded HCWs' behaviour in the facilities as off-putting. Many were rude, and their attitudes made returning for subsequent vaccine doses difficult.

The study found that most participants disagreed that expenses in terms of time and travel, and long waiting times at the hospital, could influence the vaccination decision for their adolescent daughters. In contrast, a study done by Tene-Alima Essoh et al. (2023) found that the caregivers saw the expense of travelling from their homes to health centres as a key impediment, resulting in delays, missed appointments and even refusal of immunisation and long waiting periods at the hospital complicated vaccination decisions of the working caregivers. Also, a study in Italy by Della Polla et al. (2020) indicated that the top reported reason for non-vaccination was the distance from the immunisation centres and the time the immunisation clinics opened. Also, a study by Adeyanju et al. (2022) found that most respondents stated that travelling long distances to the clinics impacted the uptake of vaccinations. These differences can be attributed to the fact that HPV vaccines in Kenya are mainly administered at schools compared to hospitals, making them more convenient for parents and caregivers. Also, health talks are given in the health centres and hospitals to patients/people in the

Article DOI: https://doi.org/10.37284/eajhs.9.1.4438

queues as they wait to be served, which may enlighten the respondents and encourage acceptance of the HPV vaccine.

According to this research, most respondents concur that recommendations from the government (policy) can influence their vaccination decisions for their adolescent daughters. The study demonstrated that most of the respondents agree that the availability of the HPV vaccine in their community can influence their vaccination decisions for their daughters.

CONCLUSION

This study demonstrates that although fathers reported high awareness of the HPV vaccine and cervical cancer, their understanding of HPV-related risks, modes of transmission, preventive measures, and vaccination eligibility remains limited. Fathers whose daughters had been vaccinated exhibited higher levels of knowledge regarding both cervical cancer and the HPV vaccine, suggesting that enhanced awareness contributes to more informed vaccination decisions. Fathers' knowledge of HPV vaccines and of cervical cancer was significantly associated with their acceptance of HPV vaccination for their adolescent daughters, whereas general knowledge of Human Papillomavirus (HPV) alone did not influence vaccine acceptance.

In addition, several health system factors were found to influence fathers' vaccination decisions. Recommendations from healthcare workers, government policy and the ready availability of the HPV vaccine were significantly associated with fathers' acceptance of HPV vaccination for their daughters, highlighting the critical role of system-level support. Conversely, poor quality of service, negative attitudes of service providers, long waiting times and travel-related costs, including distance and time, were not significantly associated with vaccine acceptance.

Overall, these findings underscore the importance of strengthening both disease-specific and vaccine-specific knowledge among fathers and ensuring supportive health system conditions, including proactive healthcare worker guidance, clear government policy, and vaccine availability, to enhance HPV vaccine uptake among adolescent girls.

Recommendations

- **Enhance fathers' disease-specific and vaccine-specific knowledge:** Health education campaigns should focus on improving fathers' understanding of cervical cancer, HPV-related risks, modes of transmission, preventive measures, and vaccine eligibility to support informed vaccination decisions.
- **Leverage healthcare worker recommendations:** Healthcare providers should actively counsel and recommend HPV vaccination to fathers, as their guidance significantly influences vaccine acceptance.
- **Strengthen government policy and communication:** Clear, consistent government policies and public awareness initiatives regarding HPV vaccination should be promoted to encourage parental support for adolescent vaccination programs.
- **Ensure vaccine availability:** Efforts should be made to maintain ready access to HPV vaccines in health facilities to facilitate uptake and reduce barriers to vaccination.
- **Targeted interventions over general HPV awareness:** Since general knowledge of HPV alone did not influence vaccine acceptance, educational programs should prioritise disease-specific and vaccine-specific information rather than broad HPV awareness campaigns.

REFERENCES

Adewumi, K., Oketch, S. Y., Choi, Y., & Huchko, M. J. (2019). Female perspectives on male involvement in a human-papillomavirus-based cervical cancer-screening program in western

Article DOI: https://doi.org/10.37284/eajhs.9.1.4438

Kenya. *BMC Women's Health*, *19*(1). https://doi.org/10.1186/s12905-019-0804-4

Adeyanju, G. C., Betsch, C., Adamu, A. A., Gumbi, K. S., Head, M. G., Aplogan, A., Tall, H., & Essoh, T.-A. (2022). Examining enablers of vaccine hesitancy toward routine childhood and adolescent vaccination in Malawi. Global Health Research and Policy, 7(1). https://doi.org/10.1186/s41256-022-00261-3

Akinleye, H. W., Kanma-Okafor, O. J., Okafor, I. P., & Odeyemi, K. A. (2020). Parental willingness to vaccinate adolescent daughters against human papillomavirus for cervical cancer prevention in Western Nigeria. Pan African Medical Journal, 36(112). https://doi.org/10.11604/pamj.2020.36.112.19007

Ana Cristina Lindsay, Delgado, D., Valdez, M. J., & Granberry, P. (2020). Latino Fathers Report Low Awareness and Knowledge of the Human Papillomavirus Vaccine, but High Willingness to Vaccinate Their Children if Recommended by Primary Healthcare Provider: a Qualitative Study. https://doi.org/10.20944/preprints202012.0525.v1

Antinyan, A., Bassetti, T., Corazzini, L., & Pavesi, F. (2021). Trust in the Health System and COVID-19 Treatment. *Frontiers in Psychology*, *12*. https://doi.org/10.3389/fpsyg.2021.643758

Anyaka, C. U., Babalola-Jacobs Alero, Biodun Olukoya, Envuladu, E. A., Musa, J., & Sagay, A. S. (2024). Parental Knowledge of HPV Infection, Cervical Cancer and the Acceptance of HPV Vaccination for their Children in Jos, Nigeria. PubMed, 14(2), 146 153. https://doi.org/10.4103/jwas.jwas_309_22

Binka, C., Doku, D. T., Nyarko, S. H., & Awusabo-Asare, K. (2019). Male support for cervical cancer screening and treatment in rural Ghana. *PLOS ONE*, *14*(11), e0224692. https://doi.org/10.1371/journal.pone.0224692

Bruni, L., & Castellsagué, X. (2019). WHO/ICO Information Centre on HPV and Cervical Cancer: un nuevo recurso en la Web. *FMC - Formación Médica Continuada En Atención Primaria*, *16*(2), 55 57. https://doi.org/10.1016/s1134-2072(09)70282-8

CDC. (2019, April 1). *Cervical cancer statistics*. Centers for Disease Control and Prevention; CDC. https://www.cdc.gov/cancer/cervical/statistics/index.htm

CDC. (2019, May 10). *Get HPV Vaccine for Your Child*. Centres for Disease Control and Prevention. https://www.cdc.gov/hpv/parents/vaccine/six-reasons.html

Della Polla, G., Pelullo, C. P., Napolitano, F., & Angelillo, I. F. (2020). HPV vaccine hesitancy among parents in Italy: a cross-sectional study. Human Vaccines & Immunotherapeutics, 16(11), 1 8. https://doi.org/10.1080/21645515.2020.1744367

Deo, S. V. S., Sharma, J., & Kumar, S. (2022). GLOBOCAN 2020 Report on Global Cancer Burden: Challenges and Opportunities for Surgical Oncologists. *Annals of Surgical Oncology*, *29*(11). https://doi.org/10.1245/s10434-022-12151-6

Donahue, K. L., Hendrix, K. S., Sturm, L. A., & Zimet, G. D. (2015). Human papillomavirus vaccine initiation among 9–13-year-olds in the United States. *Preventive Medicine Reports*, *2*, 892 898. https://doi.org/10.1016/j.pmedr.2015.10.003

Fu, L. Y., Zimet, G. D., Latkin, C. A., & Joseph, J. G. (2017). Associations of trust and healthcare provider advice with HPV vaccine acceptance among African American parents. *Vaccine*, *35*(5), 802 807. https://doi.org/10.1016/j.vaccine.2016.12.045

Human Papillomavirus (HPV) Vaccines. (2019, September 9). National Cancer Institute;

Article DOI: https://doi.org/10.37284/eajhs.9.1.4438

Cancer.gov. https://www.cancer.gov/about-cancer/causes-prevention/risk/infectious-agents/hpv-vaccine-fact-sheet#what-are-hpv-vaccines

Kim, H. W., Kim, D. H., & Kim, Y. (2018). Men's awareness of cervical cancer: a qualitative study. *BMC Women's Health*, *18*(1). https://doi.org/10.1186/s12905-018-0650-9

Kisaakye, E., Namakula, J., Kihembo, C., Kisakye, A., Nsubuga, P., & Babirye, J. N. (2018). Level and factors associated with uptake of Human papillomavirus infection vaccine among female adolescents in Lira District, Uganda. *Pan African Medical Journal*, *31*. https://doi.org/10.11604/pamj.2018.31.184.14801

Kolek, C. O., Opanga, S. A., Okalebo, F., Birichi, A., Kurdi, A., Godman, B., & Meyer, J. C. (2022). Impact of Parental Knowledge and Beliefs on HPV Vaccine Hesitancy in Kenya—Findings and Implications. *Vaccines*, *10*(8), 1185. https://doi.org/10.3390/vaccines10081185

Kucheba, F., Mweemba, O., Matenga, T. F. L., & Zulu, J. M. (2020). Acceptability of the human papillomavirus vaccine in schools in Lusaka in Zambia: Role of community and formal health system factors. *Global Public Health*, *16*(3), 378 389. https://doi.org/10.1080/17441692.2020.1810734

Lee Mortensen, G., Adam, M., & Idtaleb, L. (2015). Parental attitudes towards male human papillomavirus vaccination: a pan-European cross-sectional survey. *BMC Public Health*, *15*(1). https://doi.org/10.1186/s12889-015-1863-6

Lin, Y., Cai, C. Z., Hu, Z., Zimet, G. D., Alias, H., & Wong, L. P. (2022). The influence of men on HPV vaccination of their spouse/partner in China. *Human Vaccines & Immunotherapeutics*, *18*(5). https://doi.org/10.1080/21645515.2022.2049132

Lindsay, A. C., Delgado, D., Valdez, M. J., & Granberry, P. (2021). Latinx fathers report low awareness and knowledge of the human papillomavirus vaccine, but high willingness to vaccinate their children if recommended by a healthcare provider: A qualitative study. *Global Public Health*, *17*(11), 2883 2897. https://doi.org/10.1080/17441692.2021.1985580

Lindsay, A. C., Pineda, J. A., Valdez, M. J., Torres, M. I., & Granberry, P. J. (2020). Central American Immigrant Parents' Awareness, Acceptability, and Willingness to Vaccinate Their Adolescent Children Against Human Papillomavirus: A Pilot Cross-Sectional Study. *International Journal of Environmental Research and Public Health*, *17*(8), 2869. https://doi.org/10.3390/ijerph17082869

Mabeya, H., Menon, S., Weyers, S., Naanyu, V., Mwaliko, E., Kirop, E., Orango, O., Vermandere, H., & Vanden Broeck, D. (2018). Uptake of three doses of HPV vaccine by primary school girls in Eldoret, Kenya; a prospective cohort study in a malaria endemic setting. *BMC Cancer*, *18*(1). https://doi.org/10.1186/s12885-018-4382-x

Marshall, H., Ryan, P., Roberton, D., & Baghurst, P. (2007). A cross-sectional survey to assess community attitudes to introduction of Human Papillomavirus vaccine. *Australian and New Zealand Journal of Public Health*, *31*(3), 235–242. https://doi.org/10.1111/j.1467 842x.2007.00054.x

Mendes Lobão, W., Duarte, F. G., Burns, J. D., de Souza Teles Santos, C. A., Chagas de Almeida, M. C., Reingold, A., & Duarte Moreira, E. (2018). Low coverage of HPV vaccination in the national immunization programme in Brazil: Parental vaccine refusal or barriers in health-service based vaccine delivery? *PloS One*, *13*(11), e0206726. https://doi.org/10.1371/journal.pone.0206726

Article DOI: https://doi.org/10.37284/eajhs.9.1.4438

Mihretie, G. N., Liyeh, T. M., Ayele, A. D., Belay, H. G., Yimer, T. S., & Miskr, A. D. (2022). Knowledge and willingness of parents towards child girl HPV vaccination in Debre Tabor Town, Ethiopia: a community-based cross-sectional study. Reproductive Health, 19(1). https://doi.org/10.1186/s12978-022-01444-4

Moses, E., Pedersen, H. N., Wagner, E. C., Sekikubo, M., Money, D. M., Ogilvie, G. S., & Mitchell-Foster, S. M. (2018). Understanding Men's Perceptions of Human Papillomavirus and Cervical Cancer Screening in Kampala, Uganda. *Journal of Global Oncology*, *4*, 1–9. https://doi.org/10.1200/jgo.17.00106

Mouallif, M., Bowyer, H., Festali, S., Albert, A., Filali, Y., Guenin, S., Delvenne, P., Waller, J., & Ennaji, M. (2014). Primary Cervical Cancer Prevention in Morocco: HPV Vaccine Awareness and Acceptability among Parents. *Procedia in Vaccinology*, *8*, 68–76. https://doi.org/10.1016/j.provac.2014.07.012

Nabirye, J., Okwi, L. A., Nuwematsiko, R., Kiwanuka, G., Muneza, F., Kamya, C., & Babirye, J. N. (2020). Health system factors influencing uptake of Human Papilloma Virus (HPV) vaccine among adolescent girls 9-15 years in Mbale District, Uganda. *BMC Public Health*, *20*(1). https://doi.org/10.1186/s12889-020-8302-z

Nan, X., Daily, K., Richards, A., Holt, C., Wang, M. Q., Tracy, K., & Qin, Y. (2018). The role of trust in health information from medical authorities in accepting the HPV vaccine among African American parents. *Human Vaccines & Immunotherapeutics*, *15*(7 8), 1723 1731. https://doi.org/10.1080/21645515.2018.1540825

National Cancer Institute of Kenya. (2022). Status of Cancer in Kenya Report. In National Cancer Institute of Kenya (pp. 1–42). www.ncikenya.or.ke

Okedo-Alex, I. N., Uneke, C. J., Uro-Chukwu, H. C., Akamike, I. C., & Chukwu, O. E. (2020). "It is what I tell her that she will do": a mixed methods study of married men´s knowledge and attitude towards supporting their wives´ cervical cancer screening in rural South-East Nigeria.*PanAfricanMedicalJournal*,*36*. https://doi.org/10.11604/pamj.2020.36.156.21157

Omondi Ogutu, & JM M'Imunya. (2011). Parental acceptance of human papilloma virus vaccine for their pre-pubertal and teenage daughters. *East African Medical Journal*, *88*(5), 163–170.

Rosser, J. I., Zakaras, J. M., Hamisi, S., & Huchko, M. J. (2014). Men's knowledge and attitudes about cervical cancer screening in Kenya. *BMC Women's Health*, *14*(1). https://doi.org/10.1186/s12905-014-0138-1

Smolarczyk, K., Duszewska, A., Drozd, S., & Majewski, S. (2022). Parents' Knowledge and Attitude towards HPV and HPV Vaccination in Poland. *Vaccines 2022*, *10*(228), -. https://doi.org/10.3390/vaccines10020228

Story, W. T., Barrington, C., Fordham, C., Sodzi-Tettey, S., Barker, P. M., & Singh, K. (2016). Male Involvement and Accommodation During Obstetric Emergencies in Rural Ghana: A Qualitative Analysis. *International Perspectives on Sexual and Reproductive Health*, *42*(4), 211–219. https://doi.org/10.1363/42e2616

Tene-Alima Essoh, Gbadebo Collins Adeyanju, Adamu, A. A., Tall, H., Aristide Aplogan, & Collins Tabu. (2023). Exploring the factors contributing to low vaccination uptake for nationally recommended routine childhood and adolescent vaccines in Kenya. *BMC Public Health*, *23*(1). https://doi.org/10.1186/s12889-023-15855-w

Vermandere, H., Naanyu, V., Mabeya, H., Vanden Broeck, D., Michielsen, K., & Degomme, O. (2014). Determinants of Acceptance and Subsequent Uptake of the HPV Vaccine in a

Article DOI: https://doi.org/10.37284/eajhs.9.1.4438

Cohort in Eldoret, Kenya. *PLoS ONE*, *9*(10), e109353. https://doi.org/10.1371/journal.pone.0109353

Wong, L. P. (2009). Role of men in promoting the uptake of HPV vaccinations: focus groups' finding from a developing country. *International Journal of Public Health*, *55*(1), 35–42. https://doi.org/10.1007/s00038-009-0072-4

