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Human papillomavirus vaccine uptake and its determinants among school-going girls in Migori County, Kenya: A qualitative study

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Abstract

Background: Cervical cancer remains a major public health challenge worldwide, particularly in Sub-Saharan Africa, where disease burden remains disproportionately high. Human papillomavirus (HPV) vaccination is a key strategy to prevent cervical cancer. Despite its availability in Kenya, uptake remains low in certain regions including Migori County.

Objective: To explore the determinants of HPV vaccine uptake among school-going girls aged 10-14 years in Migori County, Kenya, from the perspectives of teachers, health care workers, parents, guardians, and community health promoters.

Methods: A qualitative study in Migori County, Kenya, used focus group discussions and in-depth interviews to identify determinants of HPV vaccination. The study included 260 participants; teachers, healthcare providers, community health promoters (CHPs), and parents selected through stratified, snowball, and convenience sampling. Audio-recorded interviews were transcribed verbatim and analyzed inductively using thematic analysis in NVivo 14.

Results: Key facilitators included school-based delivery, trusted messaging from CHPs, parental awareness, and community sensitization via religious and political leaders. Barriers included myths and misconceptions, religious and cultural beliefs, inadequate awareness among

CHPs, communication challenges, and logistical barriers to vaccine delivery.

Conclusion: HPV vaccine uptake in Migori County is influenced by cultural beliefs, communication, and health system capacity. Strengthening school-based vaccination, addressing misinformation, and enhancing the capacity of health care workers and community health promoters may improve vaccine uptake and support cervical cancer prevention.

Keywords: Cervical cancer, Human papillomavirus, Kenya, Vaccination, Vaccine hesitancy

Introduction

Cervical cancer is a leading cause of cancer mortality in low- and middle-income countries (1). It ranks as the fourth most common cancer in women worldwide, with approximately 660,000 new cases and about 350,000 deaths (1-2). Annually, there are approximately 5,250 new cases and 3,268 deaths due to cervical cancer in Kenya (3).

Persistent infection with high-risk human papillomavirus (HPV) types, particularly 16 and 18, is responsible for the majority of cervical cancer cases (3). Despite the availability of the HPV vaccine, there are disparities in vaccine uptake among adolescent girls, leading to suboptimal vaccination coverage rates (2). The World Health Organization (WHO) recommends that girls aged 9 to 14 years receive the HPV vaccine to help prevent cervical cancer, by targeting 90% of the age bracket to be vaccinated by 2030 (2).

HPV vaccine uptake in Kenya has remained suboptimal since its rollout in 2019. By 2021, only 31% of the targeted population had received the recommended two doses (4-5). Migori County has not achieved 50% vaccination coverage in this class of vaccination program (6). This study explored the sociocultural and health system determinants of HPV vaccine uptake among school-going girls aged 10 to 14 years in Migori County, Kenya.

Methods

Study design and setting

A qualitative research design was conducted to explore barriers and facilitators of HPV vaccine uptake in Migori County, Kenya. The study was conducted in Migori County in southwestern Kenya, which had a population of 1,116,436 according to the national 2019 census. The study included participants from all eight sub-counties: Rongo, Awendo, Suna East, Suna West, Kuria West, Kuria East, Nyatike, and Uriri.

Study population

Participants included key stakeholders involved in the HPV vaccination program, namely parents and guardians, teachers, community health promoters (CHPs), and health care workers providing HPV vaccination services.

Sample size calculation and sampling technique

Stratified random sampling was used to select schools across all eight sub-counties of Migori County. Teachers and parents or guardians were recruited from selected schools using snowball and convenience sampling, whereas HPV vaccine providers and CHPs were recruited through convenience sampling from health facilities serving the selected schools. Overall, 260 participants were enrolled, comprising 64 HPV vaccine providers, 64 teachers, eight FGDs involving parents and guardians of girls aged 10 to 14 years, and eight FGDs involving 64 CHPs.

Data collection and analysis

All FGDs and IDIs were audio-recorded and supplemented with field notes. Audio recordings were transcribed and analyzed using NVivo version 14 (QSR International) following an inductive thematic analysis approach. Coding was conducted in three stages: initial, focused, and thematic to identify recurrent patterns, which were subsequently categorized as facilitators or barriers at the individual, community, and health system levels.

Ethical consideration

Ethical approval was obtained from the Kenyatta National Hospital/University of Nairobi Ethics and Research Committee (KNH-ERC/A/442), the Migori County Department of Health Research Ethics Committee, and the Migori County Ministry of Education before study commencement. Participant confidentiality was maintained throughout the study, and access to interview and FGD data was restricted to the principal investigator and research assistants.

Results

Between January 7 and January 23, 2025, data were collected across Migori County through 16 FGDs involving parents and CHPs, and 128 IDIs with teachers and health care workers.

Facilitators

School-based vaccine delivery approach

School-based vaccine delivery emerged as the principal facilitator of HPV vaccine uptake. Parents and guardians regarded schools as trusted and convenient settings for vaccination, while teachers were viewed as reliable sources of information. Parent, FGD 1 said, "Teachers are like parents to our daughters, school is safe, is like home to my daughter, she can get the injection there," a parent said. Nurse, IDI 2 remarked, "It is easy to vaccinate many girls at schools than health facilities."

Supportive government policies

Integration of the HPV vaccine into Kenya's routine immunization program facilitated vaccine implementation by utilizing existing health care infrastructure and delivery systems, thereby minimizing logistical challenges. Nurse, IDI 1 said, "We were able to take off immediately since HPV vaccination was immediately integrated into the National Immunization Program."

Targeted health education

Training CHPs on HPV infection, HPV vaccination, and cervical cancer prevention enhanced their capacity to provide accurate information and promote vaccine uptake within their communities. Health worker, IDI 3 remarked, "This capacity-building initiative has strengthened their ability to effectively disseminate accurate information and support vaccine uptake within communities."

Parents and guardians who were well-informed about the safety and benefits of the HPV vaccine readily consented to their children's vaccination without hesitation. Guardian, FGD 4 mentioned that, "I heard about the vaccine over the local radio station health talk show, the doctor talked well about the vaccine, he said it is not family planning, it is safe for our girls, I urge my fellow parents and guardians to allow their girls to get the injection."

Community sensitization efforts

Community sensitization through religious leaders, local administrators, and community meetings contributed to improved awareness and acceptance of HPV vaccination. Guardian, FGD 12 responded, "My bishop told us the vaccine does not make girls not to have children, it does not kill, he is a man of God so I will take my daughter will be given the injection next week."

Community health promoters collaborated with local chiefs to raise HPV vaccine awareness by engaging in community meetings (barazas) and distributing informational brochures, including translations into the local language to improve understanding. CHP, FGD 14 remarked, "The local chiefs are our friends; they call us whenever they have local barazas to talk about HPV vaccine."

Community engagement systems

Community engagement through barazas, radio and television programs, and print and online media enhanced public awareness of HPV vaccination. Sub-County vaccination coordinator, IDI 116 emphasized, "We do send health workers to local radio and television stations to talk to the people about cervical cancer and HPV vaccination in their local languages to enable them have a better understanding of the program."

Barriers

Myths and misconceptions

Myths and misconceptions emerged as one of the most frequently reported barriers to HPV vaccine uptake, with parental fears centered on infertility, promotion of early sexual activity, and conflicts with cultural practices such as female genital mutilation. Parent, FGD 16 angrily remarked, "This injection makes our children want sex," another parent mentioned "It will make our girls not have children when they become big." Guardian, FDG 8 said, "This vaccine and COVID vaccine are the same, it has poison that can kill."

Religious and cultural barriers

Healthcare workers reported that some religious sects discouraged medical care in favor of faith-based healing, posing a significant barrier to HPV vaccine uptake. Nurse, IDI 6 said, "Some local community-based churches do not allow their followers to go to hospital for treatment as they only believe in prayers."

Stigma surrounding HPV as a sexually transmitted infection hindered vaccine acceptance. To avoid cultural sensitivity, healthcare workers often excluded this aspect in education efforts, limiting public understanding of HPV and its prevention. Health worker, IDI 108 equipped, "The topic was culturally sensitive, hence limited awareness and understanding of HPV and its prevention."

Communication gaps

Participants reported that the use of technical medical terminology by health care workers limited parents' understanding of HPV vaccination. Simplified, audience-tailored messaging is essential to enhance understanding. Guardian, FGD 11 mentioned, "Nurses use a lot of big big words, we don't understand them, I prefer to hear from the community doctors."

Limited HPV vaccine awareness

Participants identified inadequate training of CHPs, teachers, local administrators, and religious leaders as an important barrier to HPV vaccine uptake. Nurse, IDI 26 remarked, "Training is a key component of this program, we should endeavor to adequately train CHPs, chiefs, religious leaders and teachers, giving the right information to the parents and their daughters will go a long way in improving HPV vaccine uptake."

Inequities in healthcare access

Participants described health system challenges, including inadequate cold-chain infrastructure, frequent power outages, and delayed vaccine supply, as barriers to vaccine delivery in rural areas. Nurse noted, "Our health facilities are very far from the city hence at times we fail to get vaccines on time negatively affecting HPV vaccine uptake". Another one mentioned, "We experience many black outs, at times no back up for our fridges, this interferes with cold chain management.

Discussion

This study identified school-based vaccine delivery, supportive government policies, community engagement, and targeted health education as the principal facilitators of HPV vaccine uptake. Conversely, myths and misconceptions, religious and cultural beliefs, communication challenges, limited stakeholder awareness, and health system constraints hindered vaccine uptake.

School-based vaccine delivery emerged as the most important facilitator of HPV vaccine uptake because it provided an efficient platform for reaching eligible girls through the existing education system. Parents' trust in teachers further enhanced acceptance of vaccination, while health education provided by teachers improved community receptiveness. These findings are consistent with global evidence demonstrating that school-based HPV vaccination programs achieve higher vaccination coverage among girls aged 9 to 13 years, particularly in low- and middle-income countries, and that combining school- and facility-based approaches may further improve accessibility and completion of the vaccination schedule (7). Similar observations have been reported in Canada, where teacher involvement enhanced parental trust and vaccine acceptance (8), as well as in other studies demonstrating the effectiveness of school-based HPV vaccination programs in increasing vaccine uptake (9,10). Likewise, the integration of HPV vaccination into Kenya's routine immunization program facilitated implementation by leveraging existing health care infrastructure and delivery systems, consistent with findings from Kwale and Mombasa counties (11).

Community engagement through CHPs, local media, religious leaders, and local administrative leaders played an important role in improving parental awareness and acceptance of HPV vaccination. Exposure to positive messaging through radio and television increased vaccine literacy and reduced hesitancy, supporting previous studies that have highlighted the value of mass media and targeted health education in promoting vaccine uptake (12). In addition, CHPs strengthened community sensitization through household visits and the use of clear, culturally appropriate language to explain the role of HPV vaccination in preventing cervical cancer. Their effectiveness is supported by evidence demonstrating that knowledgeable CHPs can serve as trusted sources of information within communities (13). Similarly, involvement of religious leaders and local chiefs through barazas and community forums helped dispel myths and increased confidence in the vaccination program, consistent with the WHO framework on vaccine confidence, which emphasizes the importance of

trusted community leaders in improving vaccine acceptance (11).

Despite these facilitators, misinformation and misconceptions remained the most frequently reported barriers to HPV vaccine uptake. Concerns regarding infertility, promotion of early sexual activity, and vaccine safety reflected persistent fears reinforced by anecdotal reports and misinformation disseminated through communities and social media. Similar findings have been reported in Kenya and other sub-Saharan African countries, where misinformation has contributed to vaccine hesitancy and undermined public confidence in HPV vaccination (13–15).

Cultural beliefs and religious practices also influenced HPV vaccine acceptance in Migori County. Some communities associated HPV vaccination with female genital mutilation or family planning, resulting in concerns regarding future fertility. Similar misconceptions have been documented elsewhere, although evidence consistently demonstrates that HPV vaccines prevent HPV infection and cervical cancer without affecting fertility (16). In addition, stigma associated with HPV as a sexually transmitted infection discouraged open discussion during health education sessions. Health care workers frequently avoided discussing HPV transmission because of cultural sensitivities, limiting participants' understanding of the purpose of vaccination. Comparable findings have been reported in both low- and middle-income and high-income settings, where provider discomfort in discussing sexual health contributes to incomplete vaccine education (17).

Religious beliefs further influenced vaccine acceptance, with some faith-based groups discouraging vaccination or requiring parental presence before consent could be provided. Similar concerns regarding infertility and conflicts with religious beliefs have been reported elsewhere (18). Beyond community beliefs, inadequate training and capacity-building for CHPs, teachers, and religious leaders emerged as an important health system barrier. Although CHPs were recognized as key facilitators of vaccine uptake, many reported insufficient training, limited educational materials, and minimal involvement in program planning. These shortcomings reduced the consistency and effectiveness of community messaging. Similar observations by WHO and Gavi indicate that adequately trained frontline health workers are essential for successful immunization programs (19).

Communication barriers also affected HPV vaccine uptake. Parents and guardians reported difficulty understanding technical medical terminology used by health care workers and preferred receiving information from CHPs, who communicated using simpler, culturally appropriate language. Similar communication challenges arising from technical language, language differences, and cultural barriers have been identified in other studies and contribute to misunderstanding and reduced vaccine acceptance (20).

Health system challenges, particularly inadequate cold-chain infrastructure, unreliable electricity supply, and limited vaccine storage capacity in rural facilities, contributed to inconsistent vaccine availability and missed vaccination opportunities. These findings are consistent with previous studies from resource-limited settings demonstrating that logistical constraints continue to undermine immunization programs despite supportive national vaccination policies (21).

This study has several limitations. Because it was conducted in a single county using a qualitative design, the findings may not be generalizable to other settings. In addition, the identified facilitators and barriers reflect participants' perceptions and were not quantitatively validated. Nevertheless, the study included participants from all eight sub-counties of Migori County and incorporated perspectives from multiple stakeholder groups through both FGDs and IDIs, thereby strengthening the credibility and comprehensiveness of the findings.

Conclusion

HPV vaccine uptake in Migori County is influenced by sociocultural factors, health system capacity, and the effectiveness of community communication. School-based vaccine delivery, community engagement, and targeted health education emerged as important facilitators of vaccine uptake, whereas misinformation, cultural and religious beliefs, communication challenges, and health system constraints remained significant barriers. Strengthening school-based vaccination programs, enhancing community sensitization, addressing misinformation, building the capacity of health care workers and community health promoters, and improving health system infrastructure are essential strategies for increasing HPV vaccination coverage and advancing cervical cancer prevention.

Conflicts of interest
The authors have no conflicts of interest to declare.

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Data availability
All data generated or analyzed during this study are included in this article, and additional details or raw data are available from the corresponding author upon reasonable request.

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