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Original Research Article

Guardian willingness to vaccinate adolescent daughters against human papillomavirus for cervical cancer prevention in hard-to-reach communities in Mandera County, Kenya

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ABSTRACT

Background: Cervical cancer is the fourth most frequent disease in women, and in 2020, there was an estimated 604,127 new cases and 342,831 fatalities worldwide. Despite the fact that cervical cancer can be easily treated if detected early, Sub-Saharan Africa suffers the greatest incidence of cervical cancer morbidity and mortality. The purpose of this study was to ascertain parents' readiness to protect teenage girls from Human Papillomavirus.
Methods: The study used a cross-sectional descriptive strategy conducted among guardians of adolescent girls in rural area in Mandera. A simple random sampling technique was adopted and data was collected through key informant interviews, focus group discussions, and pretested interviewer-administered questionnaires.
Results: The study's findings demonstrated that while parental understanding of the HPV vaccine was low in our study area, parental awareness was high. This resulted in low parental acceptance of the HPV vaccine, which in turn resulted in low uptake. The study participants' degree of vaccination acceptance was low (30%), with the majority showing hesitation (54%). Socio-cultural factors and religion were identified as the main barriers to HPV vaccine acceptance among the participants.
Conclusions: The findings of our study demonstrate that although guardians in the research area had a high level of awareness of the HPV vaccine, there was poor uptake of the vaccine due to low knowledge and sociocultural reasons. Despite the fact that these services were both ample and accessible.

Keywords: HPV vaccine, Cervical cancer, Hard-to-reach communities

INTRODUCTION

Estimates from GLOBOCAN for 2020 showed that 604,000 cases were newly diagnosed and 342,000 reported deaths worldwide due to cancer of the cervix, in Africa, around 372.2 M females under the age of 15 years were at risk of contracting cervical cancer in which 119,284 cases were diagnosed yearly with a mortality rate of 68.5 % representing 81,687 deaths.[1] GLOBOCAN statistics estimates for Asempha 2021 stated that there were an estimation of cases annually and 3,211 deaths in Kenya, this represented 12.4 %. According to Karanja et al it was reported that HPV vaccination uptake in Kenya was at 33%, for the first dose, (this had a slight increase from 25% in 2019) while the second dose was reported to have a drop at 16%.[2] Geographical differences in cervical cancer prevalence were noted; in SSA, Guinea had the highest rates (48%) and Mozambique had the lowest rates (41%). By 2030, 443,000 women would have died from cervical cancer worldwide, (WHO). With Sub-Saharan Africa and low- and middle-income countries (LMICs) expecting the highest percentage of deaths (98%) Lekoane 2019.[3]

Human Papillomavirus (HPV) was strongly associated with cervical cancer in Kenya, where it accounted for 12.4% of cases per year, with an estimated 5,236 diagnosed cases and roughly 3,211 (11.9%) deaths associated with those cases.[4] and the infection usually happens as a result of sexual activity. Estimates from the Ministry of Health, Kenya (MOHK) GLOBOCAN 2020 indicates that 5236 new cases and 3211 deaths from cervical cancer occur each year, affecting 16.2 million women (females age 15 and older) who are at risk. Center for HPV Information 2021.[5]

METHODS

This study was a community based cross-sectional study design, among guardians of adolescent girls in Mandera East Sub County, in Mandera, Kenya. The study was conducted for a period of 3 months from December 2022 to February 2023. The sample size was 278, calculated through the fishers' formula.

Inclusion criteria

Parents or guardians of teenage girls aged 9-14 years and who have lived in Mandera East Sub- County for at least six months prior to the study's start and gave their consent for participation in the survey were included.

Exclusion criteria

Exclusion criteria were; A parent/guardian of a girl child aged 9-14 years but who do not meet the residence criteria. Having been a resident in the sub-county for less than six months and parent/guardians without girls in the target age category.

RESULTS

Demographic details

Majority of the respondents 189 (68.0%) were married. A chi square test to determine if there existed a statistical difference regarding acceptability of HPV vaccine across marital status was not significant (p=0.4). Thus, no relationship between marital status and willingness to take up HPV vaccine. Attendees at the primary level of education were 16 (6.4%), those at the secondary level were 18 (6.5%), those with zero to no education were 13 (4.7%), those with incomplete secondary education were 101 (36.3%), and those with tertiary education were 130 (46.8%). Most respondents 148 (53.2%) had completed their secondary and/or tertiary education. In order to determine whether parental acceptance of HPV changed according to educational level, a chi square test yielded a significant result at (p=0.00). Poor education resulted to inadequate knowledge of HPV, cervical cancer, and the necessity to immunize girls in their adolescent years. Respondents that had 1 to 3 children, 149 (53.65), those that had 4 to 5 children 97 (34.9%). Chi square test to determine if there existed a statistical significance between respondents with low parity and high parity returned a positive result p=0.00. These findings were similar to another study in Sub- Saharan Africa that associated parity with utilization of ANC services, Okendo, 2019.[6] The study sought to determine the socio demographic characteristics of the respondents. The (Table 1) shows the distribution of the socio demographic factors.

Table 1: Social demographic characteristics of the respondents.

Parameters	N	%
Age category (years)		
21-25	32	11.5
26-30	10	3.6
31-35	163	58.6
36-40	49	17.6
Above 41	24	8.6
Total	278	100.0
Religion		
Catholic	39	14.0
Protestant	40	14.4
Muslim	199	71.6
Total	278	100.0
Education		
Have never attended school	13	4.7
Attained primary education level	16	5.8
Did not complete secondary education level	101	36.3
Attained secondary education level	18	2.9
Attained post-secondary education level	130	50.4
Total	278	100.0
Marital status		
Married	189	68.0
Never married	48	17.3
Divorced	28	10.1
Separated	13	4.7
Total	278	100.0
Pregnancy		
No	19	6.8
Yes	259	93.2
Total	278	100.0
No. respondents children		
1	149	53.6
4-5	97	34.9
Above	32	11.5
Total	278	100.0

Knowledge on cervical cancer and cervical screening

As shown in (Figure 1), there was a high level of awareness of cervical cancer among the respondents. High levels of usage of the HPV vaccine are anticipated to be correlated with high levels of awareness. High levels of awareness in this situation, however, did not correspond to respondents' acceptance of the HPV vaccine. Many studies have pointed at the correlation between the awareness and knowledge, and utilization of cervical cancer services.

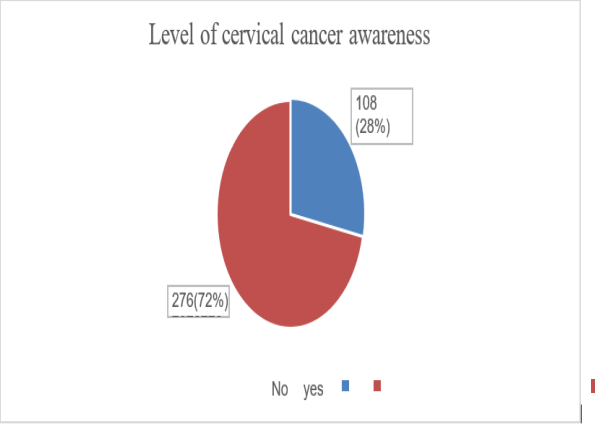

Figure 1: Level of cancer awareness among the respondents.

Acceptability of HPV vaccine among guardians

As it can be seen in the pie chart above, the level of HPV acceptability among the respondents is very low. Approximately 62% of the respondents do not know about it or they do not plainly accept it on their children from qualitative data collected, various explanations were given on this. This included people's religion and culture. A logistic regression was performed to ascertain the effects of religion, education, knowledge on cervical cancer and occupation on the likelihood that participants will allow their children to take up HPV vaccine. The findings were as indicated in the (Table 3). The logistic regression model was statistically significant, $\chi 2$ (4)=120.6, p<0.0005. The model explained 48.3% (Nagelkerke R2) of the variance on guardian willingness to allow their children to take up HPV vaccine, and correctly classified 86.6.0% of cases.

Binary logistic regression model

Variable(s) entered on step 1: My religion allows children to get HPV vaccination, my culture allows children to get HPV vaccination, it is socially acceptable to give young girls HPV vaccination, my occupation is not a hindrance to HPV vaccination for my daughter.

Table 2: Level of HPV vaccine knowledge among guardians residing in Mandera East Sub-County, Mandera.

Indicators	Yes. N (%)	No, N (%)	Do not know (DNK), N (%)	Mean	SD
Have you heard of HPV?	132 (47.5)	88 (31.6)	36 (12.9)	2.1	1.21
Do you think HPV has a role in cervical cancer development?	128 (46)	11 (39.9)	39 (14)	2	1.11
Does HPV infection have no symptoms?	73 (26)	105 (37.8)	100 (36)	2.1	1.417
Are HPV infections considered sexually transmitted diseases?	72 (25)	124 (44.6)	66 (23.7)	2.3	1.43
Can an abnormal PAP test be brought on by HPV infection?	119 (42.8)	84 (30.2)	75 (26.1)	1.5	1.01
Are human papillomavirus and HIV distinct diseases?	135 (48.6)	54 (19.4)	65 (23.4)	1.1	1.01
Did you know there is an HPV vaccine?	123 (44.2	41 (14.7	71 (25)	2	1.7

In this study, religion was perceived to be one of the barriers to HPV adoption among the respondents. In this study majority of the respondents were Muslims (71.6%), followed by Christians (28.4%). Chi square test on the influence of religion on acceptability was significant X^2 (4, N=278) =15.297, p=0.004. Muslims were 7.02 times less likely to exhibit willingness to allow their children to take up HPV vaccine. Increasing education level was associated with an increased likelihood of exhibiting willingness to allow their children to take up HPV vaccine. Additionally, it came up in the focus group discussion that religion was a barrier. A study on the impact of religion on adolescent girls conducted in Asia found that parents with strong religious beliefs are more likely to resist HPV vaccination than parents with lesser beliefs Wong et al.[7] It was also shown in the research we carried out that religion played a key impact in influencing whether or not people took the HPV vaccine because the majority of the participants were Muslims and the majority of them had strong understanding of HPV. It is unnecessary to immunize teenage girls against the sexually transmitted Human papilloma virus as premarital relationships are absolutely prohibited in Islam, thus people were less inclined to get the HPV vaccine. Our study found that the majority of respondents indicated that their culture permitted them to vaccinate their daughters. 55 (55.6%) stated that their culture did not allow them to vaccinate their daughters, followed by 5 (5.1%), 39 (39.4%), who did not know if their culture permitted vaccination or not. A Chi square test revealed a statistical significance between culture and the acceptability of the HPV vaccination at X2 (4, N=278) =85.627, p=0.00. It was observed that culture had an impact on the acceptance of HPV serum. In terms of social acceptability, this study indicated that more over half of 150 respondents (54%) did not think that giving young girls an HPV vaccination was acceptable in society. While 83 (30%) of the respondents thought that immunizing young girls was socially acceptable, a small 41 (15%) of the respondents were unsure of the answer.

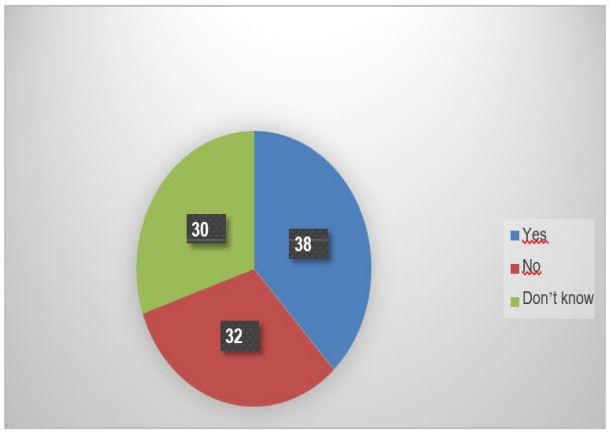

Figure 2: Guardian acceptance of HPV vaccine on their children.

Table 3: Model summary.

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	241.435[a]	0.352	0.483

[a]Estimation terminated at iteration number 5 because parameter estimates changed by less than 0.001.

Health facility based factors influencing HPV vaccine adoption

According to the results 67.7% of respondents indicated that HPV services are accessible. In contrast, 13% disagreed with this assertion, and 19.2% claimed to be unaware of the existence of such services. It was determined that the Chi square test result, X2 (2, N=278) =4.815, p=0.0009, was significant.

Table 4: Binary logistic regression model.

Binary logistic regression model			SE	Wald	Df	Sig.	Exp(B)
Step 1a	My religion allows children to get HPV vaccination	0.059	0.158	0.140	1	0.708	1.061
	My culture allows children to get HPV vaccination	0.069	0.024	8.484	1	0.004	1.072
	It is socially acceptable to give young girls HPV vaccination	-0.522	0.120	19.021	1	0.000	0.594
	My occupation is not a hindrance to HPV vaccination for my daughter	-0.798	0.126	40.157	1	0.000	0.450
	Constant	3.988	0.550	52.582	1	0.000	53.922

Table 5: Social and cultural factors influencing guardian acceptance of HPV vaccines in Mandera East sub county Mandera County.

Indicators	Strongly disagree (%)	Disagree (%)	Undecided (%)	Agree (%)	Strongly agree (%)	Mean	SD
My culture allows children to get HPV vaccination	28.8	30.4	9.3	13.5	19	2.4	1.51
My religion allows children to get HPV vaccination	17.2	25.2	7.4	129.4	20.7	2.0	1.54
It is socially acceptable to give young girls HPV vaccination	18.8	17.7	9.3	26.2	28.0	2.2	1.517
It is agreeable to my partner to have our daughter get HPV vaccination	11.9	25.7	7.4	27.2	27.8	2.3	1.43
My occupation is not a hindrance to HPV vaccination for my daughter	10	12	6	28	34	1.9	1.01

These results show that the services needed to offer HPV vaccines were available. According to the results displayed below, 67.7% of respondents said that healthcare staff are educated about issues relating to the HPV vaccine when it comes to the availability of human resources to provide services, they were also available. Regarding the HPV vaccine's price, the majority of respondents (75.34%) were unaware that it was a cheap option, yet a sizeable portion (33.8%) of respondents disagreed with this statement. 2.5% of people agreed that the HPV vaccine was reasonably priced. Chi square test result: X2 (2, N=278) =89.221, p=0.000.

DISCUSSION

Our study found that guardians, particularly the male spouse Danforth who had the final say in family decisions, have a role to play in their children's lives when it comes to health, Danforth, 2009. Another study by William et al found that men's partners' ability to access screening services was impacted by men's lack of knowledge about cervical cancer. Our study was consistent with another study by Buba et al which found that women who had attained up to secondary education were more likely to use cervical cancer services as compared to women who had

poor education, Buba et al 2019.[10] Poor education levels led to poor knowledge on cervical cancer and HPV as well as the need to give their children/adolescent girls HPV vaccine. These findings imply that the use of healthcare is closely related to education.[11] Poor education levels lead to poor knowledge on cervical cancer and HPV as well as the need to give their children/adolescent girls HPV vaccine. These findings imply that the use of healthcare is closely related to education. The responders' (38%) degree of acceptance of HPV was low. The patriarchal nature of Somalis and the fact that 62% of respondents either did not know about it or did not openly accept it on their children can be ascribed to both. The majority of respondents in this study (71.6%) were Muslims, who have strong religious convictions and who were therefore more likely to reject the HPV vaccine and be reluctant to let their daughters receive it. Religion was perceived by the respondents as one of the barriers to HPV adoption. In terms of social acceptability, this study found that more than half of the respondents (54%) did not think that it is socially acceptable to vaccinate young girls against HPV, while 83 (30%) agreed and a small number (15%) did not know whether it is socially acceptable or not. According to the results, 55% of respondents said their partners would allow their daughters to receive vaccinations, but there were some respondents who said their partners would not allow their daughters to do so (37.6%), and a few participants were unsure whether their partners would allow their daughters to receive vaccinations or not. According to our findings, the services needed to offer HPV vaccines have been covered, and there is an appropriate supply of trained personnel.

CONCLUSION

The findings of our study demonstrate that although guardians in the research area had a high level of awareness of the HPV vaccine, there was poor uptake of the vaccine due to low knowledge and sociocultural reasons. Despite the fact that these services were both ample and accessible.

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