

Knowledge and attitudes about Human Papilloma Virus (HPV) vaccination and cervical cancer screening among women in rural Uganda

Authors:

NKONWA INNOCENT H¹, MICHAEL J. D'ONOFRIO³, JOSEPH NGONZI¹, MUHWEZI WILSON², CECIL BANULA², KIKU TONY BUNJO⁴, FLORENCE MIREMBE²

Affiliations:

1. Mbarara University of Science and Technology, Department of Obstetrics and Gynecology
2. Makerere University Kampala.
3. United States Army Medical Research Institute of Infectious Diseases (USAMRIID)
4. Luwero district local government, Biostatistician

***Corresponding author Nkonwa et al**

Abstract

Cervical cancer is one of the major causes of death among women worldwide. There is an established linkage between cervical cancer and Oncogenic Human Papilloma virus (HPV) strains 16 and 18. While cervical cancer is widely understood as a fatal disease, knowledge and awareness of cervical cancer and HPV in Uganda has been limited even among health workers.

Objectives: To establish the level of knowledge in regard to HPV vaccination among parents/guardians of the vaccinated girls and to assess the attitudes to HPV vaccination among parents/guardians of the vaccinated girls.

Methods: A cross-sectional study where 384 mothers/ female guardians of vaccinated girls were recruited into the study. One hundred and sixty four women reported knowing about HPV i.e. 42.7% out of the 384 women. The variables which were significantly associated with knowledge of HPV among the women were; age below 30years, higher education level with $P < 0.001$, Marital status with $P < 0.001$, tribe $P = 0.021$, Religion, $P = 0.001$ and occupation with $P < .001$.

Conclusion: The level of knowledge of HPV among the women of Nakasongola district was relatively low. High education among the mothers contributed to better

knowledge. The general attitude towards HPV vaccination was positive among mothers though there is still need for the populations to appreciate HPV and cervical cancer in general.

Introduction & Background

While cervical cancer is widely understood as a fatal disease, knowledge and awareness of cervical cancer in Uganda has been limited even among health workers (Aruba Wani J et al, 2010). There has been a wide belief among Ugandans that cervical cancer is sexually related. In a study conducted in five Ugandan districts, respondents correctly noted that early sexual debut and presence of STIs might increase the risk of developing cervical cancer, however, no one mentioned of the relationship between HPV and cervical cancer (PATH 2009). Many Ugandans were known to have concerns about HPV vaccination. The main concerns included; distrust of untrained staff providing the vaccine, vaccine expiration, spreading HIV due to re-use of needles. There were also myths including that fact that vaccines may cause infertility in women and that the drugs could be toxic (PATH 2009). It's on that basis that we sought to assess whether the above concerns were addressed by the HPV demonstration project in Ibanda and Nakasongola districts. Our objectives included; establishing the level of knowledge in regard to HPV vaccination among vaccinated girls in Nakasongola district as well as establishing the level of knowledge in regard to HPV vaccination among parents of the vaccinated girls.

Methodology

Study Site

The study was conducted in Nakasongola town council, Wabinyonyi sub-county and Nakitome sub-county of Nakasongola district i.e. central Uganda. Nakasongola district has an estimated population of 125,297 (UBOS - 2004) spread over 3509.9 km². The population growth rate of the district is 3.3% (UBOS - 2006) and the population density is 41 persons per square kilometer. The total female population is 62,312 and 62,985 males (UBOS - 2004). Agriculture is the major economic activity with emphasis in food crops e.g. cassava, maize and a few cash crops i.e. cotton and coffee. The district has a total of 141 primary schools and over 15 secondary schools. The average household size is 6 people.

Study Population

The study population was all eligible girls vaccinated for HPV together with their parents between 2008- 2010 in Nakasongola district.

Study Design

The study was aimed at generating a detailed understanding of HPV vaccination knowledge, attitudes of the vaccinated girls and their mothers to the vaccination process.

The study was cross sectional because:

- Its less time consuming hence quick
- Require less resources, i.e. cheap
- No follow up required
- Good at determining prevalence and identifying associations.

Sampling Procedure

Random sampling was done from the schools. The vaccinated girls identified together with their parent (one) were given a questionnaire administered by the interviewer, which had both closed and open ended questions.

Eligibility Criteria: All mothers /guardians of vaccinated girls.

Exclusion Criteria: All parents who refused to consent, all vaccinated girls who refused to assent and if the participant were very sick at the time of the study.

Study Instruments: A pre coded questionnaire was developed, pre tested, modified and translated into an appropriate language. This questionnaire was used to collect socio-demographic information, information concerning level of knowledge and on attitudes of all the participants concerning HPV vaccination. The questionnaire was administered to the participants by the interviewer.

Data Collection: Data was collected from the study sites.

Sub county	Estimated number of households	Number of parishes sampled	Number of questionnaires
Wabinyonyi sub county	2,148	3	110
Kakooge sub county	3,661	3	188
Nakasongola T/C	1,666	3	86

Quality control:

The research team used relevant standard operating procedure manuals to guide interviewers in data collection, and for accuracy and completeness, we checked completed questionnaires on a daily basis. We also reviewed 10% random sample of records of participants for inconsistencies and completeness.

Data analysis

All statistical analysis was carried out using SPSS. Univariate bivariate and multivariate analysis was conducted to provide descriptive statistics of the participants. Statistical significance was calculated using chi squared tests with significance of $p < 0.05$.

Results

Table 1: Socio Demographic Characteristics for Women

Variable		Number (n =384)	Percentage
AGE	Less than 30years	168	43.8%
	30 to 40 years	131	34.1%
	More than 40 years	85	22.1%
TRIBE	Muganda	78	20.3%
	Muluri	219	57.0%
	Acholi	08	2.1%
	Other	79	20.6%
RELIGION	Protestant	182	47.4%
	Moslem	15	3.9%
	Catholic	58	15.1%
	Born again	47	12.2%
	Other	82	21.4%
MARITAL STATUS	Single	102	26.6%
	Married	234	60.9%
	Divorced	25	6.5%
	Widow	23	6.0%
OCCUPATION	Continuing education	53	13.8%
		18	4.7%
	Civil servant	192	50.0%
	Peasant	23	6.0%
	Farmer	50	13.0%
EDUCATION LEVEL	Never been to school	31	8.1%
		182	47.4%
	Primary	110	28.6%
	O level	13	3.4%
	A level	48	12.5%
	Tertiary		

Nearly 80% of the mothers/guardians to the vaccinated girls were less than 40years of age with 57% being Baruli, 60% married, 50% peasants and with over 50% with low education i.e either primary or never been to school at all. Only 12.5% had higher education.

Table 2: KNOWLEDGE ABOUT HPV AMONG MOTHERS/GUARDIANS OF THE GIRLS

VARIABLE n=384	YES (%)	(no and NO (no and (%)	P-value	Level of significance
AGE				
<30YRS	85 (50.6%)	83(49.4%)	0.013	Significant
30-40	50 (38.2%)	81(61.8%)		
EDUCATION				Significant
STATUS	05(16.1%)	26(83.9%)		
Never been to school	59(32.4%)	123(67.6%)		
Primary	58(52.7%)	52(47.3%)		
Q level	11(81.6%)	02(15.1%)		
MARITAL				
STATUS	55(53.9%)	47(46.1%)		Significant
Single	84(35.9%)	150(64.1%)		
Married	18(72.0%)	07(28.0%)		
TRIBE				
Muganda	30(38.5%)	48(61.5%)		Significant
Muluri	104(47.5%)	115(52.5%)		
Acholi	00(0.0%)	08(100.0%)		
Religion				
Protestant	73(40.1%)	109(59.9%)		Significant
Moslem	06(40.0%)	09(60.0%)		
Catholic	14(24.1%)	44(75.9%)		
OCCUPATION				Significant
Continuing education	36(67.9%)	17(32.1%)		
Civil servant	12(66.7%)	06(33.3%)		
Peasant	63(32.8%)	129(67.2%)		
Farmer	10(43.5%)	13(56.5%)		
Employed	17(31.0%)	37(66.0%)		

One hundred and sixty four women reported knowing about HPV i.e. 42.7% out of the 384 women. The variables which were significantly associated with knowledge of HPV among the women were; age with $p=0.013$ with the mothers/guardians below 30years being more knowledgeable compared to the older ones. The education

level with $p < 0.001$ was also found to be significantly associated with level of HPV knowledge with those with higher education being more knowledgeable.

Marital status with $p < 0.001$ was also significantly related with the single being more knowledgeable. One's tribe also was significantly related to level of knowledge with $p = 0.021$. The Baruli were found to be the most knowledgeable compared to the other tribes. Religion with $p = 0.001$ and occupation with $p < 0.001$ were also significantly associated with level of knowledge with protestant and highly educated related occupations i.e. civil servants and those with continuing education being more knowledgeable.

Table 3: Showing participants who knew some HPV related issues

No	HPV related issue	MOTHERS/G HARRIS
01	HPV is sexually transmitted	223(58.1%)
02	HPV vaccination is important	287 (74.7%)
03	Know about cervical cancer screening	272 (70.8%)
04	Knew that many sexually active women may carry one or more	200 (52.1%)
05	Knew something about cervical cancer	321 (83.6%)
06	HPV causes genital warts	3 (0.8%)

Fifty five percent (58.1%) of the women knew that HPV was sexually transmitted. About 74.7% of the women knew the importance of HPV vaccination. A good number i.e. 70.8% of the women knew about the importance of cervical cancer screening. The percentage of the participants who knew that many women who were sexually active had already acquired one or more strains of HPV were 52.1%. For knowledge about cervical cancer, 83.6% of the women had heard about cervical cancer.

TABLE 4: Showing Attitude of the Mothers/Guardians towards HPV Vaccination

VARIABLE	Strongly agree	I agree	Strongly Disagree	Disagree	No opinion	P Value	Level of significance
Age							Not significant
Less than 30	95	66	0	1 (0.6%)	6 (3.6%)	0.69	
30-40	(56.5%)	(39.3%)	0	0	2(1.5%)		
years	82	47	0	0	4 (4.7%)		
Tribe							Not significant
Muganda	40(51.3	37	0	0	1 (1.3%)	0.234	
Muruli	%)	(47.4%)	0	0	9 (4.1%)		
Acholi	134	76	0	0	0		
Others	(61.2%)	(34.7%)	0	1 (1.3%)	2 (2.5%)		
	7	1					
Religion							Not significant
Protestant	99	76(41.8	0	1 (0.5%)	6 (3.0%)	0.287	
Moslem	(54.4%)	%)	0	0	0		
Catholic	7	8	0	0	4 (6.9%)		
Born again	(46.7%)	(53.3%)	0	0	1 (2.1%)		
Other	31	23	0	0	1 (1.2%)		
Marital status							Significant
Single	53	46(41.1	0	1 (1.0%)		0.069	
Married	(52.0%)	%)	0	0	2 (2.0%)		
Divorced	151	73(31.2	0	0	10(4.3		
	(64.5%)	%)	0	0)		
EDUCATION LEVEL							Not significant
Primary	104(57.1	70	0	0	8 (4.4%)	0.550	
A level	%)	(38.5%)	0	0	0		
O level	7(53.7%)	6	0	1 (0.9%)	2(1.8%)		
Tertiary	62(56.4	(46.2%)	0	0	0		
	%)	45			2 (6.5%)		

All the women, majority had positive attitude toward HPV vaccination and seemed not to be influenced by age, tribe, religion, marital status, occupation or educational level.

DISCUSSION: Knowledge of the Mothers/Guardians of the Vaccinated Girls

In this study it was found that the knowledge about HPV among the women/ mothers of the vaccinated girls was low at only 42.7%. This however was higher compared to previous studies which reported awareness of HPV of 26% and about HPV vaccine at 25.7% (Sami Abdo Radman Al- Dubai et al (2010). Similar studies reported lower levels of HPV knowledge e.g. S.A Francis et al (Nov 2010) in South Africa reported that majority of the study participants were unfamiliar with HPV and cervical cancer. In this study, 58.1% of the women reported that HPV is transmitted through sexual intercourse. Lower percentages were reported in this study were reported on the relationship between HPV and genital warts with only 0.8% of the women knowing this relationship. This was far too low compared to Holcomb et al (2004) which reported 33.8% of the respondents being aware that HPV causes genital warts. For the women who participated in the study, a number of factors were found to be significantly associated with level of HPV knowledge. Young age was found to be significantly associated with more knowledge of HPV with $p=0.013$. Education level also significantly associated with more knowledge compared to those less educated ($p<001$). The percentage increased with increased education level with primary, 0 level, A level and tertiary having 32.4%, 52.7%, 84.6% and 62.5% respectively.

Unmarried women (single and divorced) were found to be significantly more knowledgeable about HPV and related issues than the married, $p<0.001$. This could have been partly because unlike the married women who have to request for permission from their husbands, the single and divorced are more empowered because they are in control of their lives. The unmarried also at times perceive themselves as being at greater risk of HPV compare to the married. The occupation also of the women was also found to be significantly related to level of knowledge $p<0.001$ with all women in formal employment i.e. the civil servants (66.7%), farmers (43.5%) and the continuing education (67.9%) women. Women in formal employment have some degree of education since the kind of work they do needs some skill which can only be got through training. This further emphasizes the role of education of the women and their appreciating issues. This can be linked with the easier access to the different communication channels e.g. radio compared to their counterparts.

The other factor religion ($p=0.001$) was also found to be significantly associated with level of knowledge with the protestant being the most knowledgeable.

The HPV vaccination acceptance rates were very high with. Acceptance among the mothers and guardians was 96.6%, with 59.1% strongly agreeing and 37.5% agreeing. The high acceptance rates were majorly contributed to the fact that many participants appreciate the relevance of immunization based on the experience of the eight UNEPI immunizable diseases whose prevalence has gone down with time among the communities vaccinated. However some didn't appreciate HPV very well though they thought that since government immunization programs have been beneficial, even this might be good, hence the support.

Conclusion & Recommendations

The level of knowledge of HPV among the women of Nakasongola district was relatively low. High education among the mothers contributed to better knowledge. The general attitude towards HPV vaccination was positive though there is still need for the populations to appreciate HPV and cervical cancer in general. It's important to raise awareness through education programs being sensitive to the different tribes and minority groups in the area of operation in the different health programs. Recommendations included; need for more sensitization of the communities where vaccination occurred to appreciate HPV and relationship to cervical cancer, a need to educate the girl child to empower them to understand and appreciate these issues, a need to exploit the positive attitude toward HPV vaccination for more education as well as a need for the languages used in communication to be sensitive to other minority groups in the communities.

Acknowledgements

I would like to thank Dr Jean Chamblain, Dr Eve Nakabembe, Winnie Nkonwa, Ms Edith Galiwango, Kyarisima Catherine, Namukwaya Juliet, Justine Nakiwala for all the support. I would like to thank UNSCT/MSI for all the funding for this study.

DISCLAIMER; Opinions, interpretations, conclusions, and recommendations are those of the author and are not necessarily endorsed by the U.S. Army.

References

- 1 Dinh TA, Rosenthal SL, Donn EDK, Trang T,Pham V, Tran VD,Bao Phan GA, Chu HKH, Breitkopf CR, Attitudes of mothers in Vietnam towards a HPV vaccine,Journal of adolescent health 2007
- 2 Zimet GD,Liddon N, Rosenthan SL, Lazscano-Ponce E, Allen B,Psychosocial aspects of vaccine acceptability , 2006.
- 3 Dell DL, Chen H, Ahmad F, Steward DF,Knowledge about HPV among adolescents 2000.
- 4 Ogivie GS, Remple VP, Marraf, McNEIL SA, Nans,Pielak KL,Ellen TG,Dobson GR,Money DM, Patrick DM,Parental intention to have their daughters receive HPV vaccine 2007
- 5 Friedman AL,Shepeard H, Exploring knowledge, attitudes and beliefs and communicating preferences of general public regarding HPV 2007
- 6 Marlow LAV, Wardle J Parental attitudes to Pre pubertal vaccination 2007
- 7Waller, Marlow L, Wardle J Public awareness that HPV is a risk factor for cervical cancer 2007
- 8 Epidemiology and prevention of HPV and cervical cancer in sub Saharan Africa, a comprehensive review Louie KS ,De Sanjose S,Mayard P 2010
- 9 HPV vaccine knowledge and beliefs among Cambodian American parents and community leaders Doh,Seng P, Talbot J, Acorda E, Coronado GD, Taylor VM 2009
- 10 Drivers and barriers to acceptance of HPV vaccination among young women. Mortensen GL
- 11 An assessment of the readiness of the introduction of HPV vaccine in Uganda Katohoire RA, Jitta J, Kivumbi G, Murokore D, Arube W J,Sin G,Arinaitwe L,Mugisha E, TV,BA 2006
- 12 Kaiser Daily women's Health Policy report, 2006.
- 13 Uganda Demographic and Health Survey - 2006
14. Parkin, D., et al., Global cancer statistics, 2002, CA Cancer Clin.2005.55; p.74-108
- 15 Clifford, G. et al. Worldwide distribution of human papillomavirus types in cytological normal women in the International Agency for Research on cancer HPV prevalence surveys; a pooled analysis. Lancet, 2005 .366 (9490): p. 991-8.
- 16 Mirembe, F .T he changing pattern of carcinoma of the cervix in Uganda. 1993. Kampala.

17. Asiimwe, s. Predictors of high - risk human papillomavirus infection, a Population based study in rural, Uganda in Epidemiology and Biostatistics, 2006, Case Western Reserve University; Cleveland.
18. Serwadda, D, et al, Use of a hybrid capture assay of self – collected vaginal swabs in rural Uganda for detection of human papilloma virus. J Infect Disease, 1999 1999.180; p. 1316.1319.
19. Dell, D., et a., knowledge about human papilloma virus among adolescents. Obstetrics Gynecology, 2000. 96:p.653-56
- 20 Uganda Bureau of Statistics 2006, 2010.
- 21 Nakasongola district, Location, Population, Economy, Transport – Uganda Travel Guide
- 22 Uganda hand covers statistics (1995)
- 23 Center for young children’s hospital Boston June 2010
- 24 UNAIDS report may 1998
- 25 Lauren Hersh, Cate Lane, Ammie Feijoo Adolescent and reproductive health in sub Saharan Africa 1998