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

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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 km^2. 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%
	Civil servant	18	4.7%
	Peasant	192	50.0%
	Farmer	23	6.0%
	Business	50	13.0%
	Others	48	12.5%
EDUCATION LEVEL	Never been to school	31	8.1%
	Primary	182	47.4%
	O level	110	28.6%
	A level	13	3.4%
	Tertiary	48	12.5%

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%)		
30-40	50 (38.2%)	81(61.8%)	0.013	**Significant**
>40YRS	28(32.9%)	57(67.1%)		
EDUCATION STATUS				**Significant**
Never been to school	05(16.1%)	26(83.9%)		
Primary	59(32.4%)	123(67.6%)		
O level	58(52.7%)	52(47.3%)		
A level	11(84.6%)	02(15.4%)		
Tertiary	30(62.5%)	18(37.5%)	0.001	
MARITAL STATUS				
Single	55(53.9%)	47(46.1%)		**Significant**
Married	84(35.9%)	150(64.1%)		
Divorced	18(72.0%)	07(28.0%)		
Widowed	06(26.1%)	17(73.9%)	0.001	
TRIBE				
Muganda	30(38.5%)	48(61.5%)		**Significant**
Muluri	104(47.5%)	115(52.5%)		
Acholi	00(0.0%)	08(100.0%)		
Others	29(36.7%)	50(63.3%)	0.021	
Religion				
Protestant	73(40.1%)	109(59.9%)		**Significant**
Moslem	06(40.0%)	09(60.0%)		
Catholic	14(24.1%)	44(75.9%)		
Born again	20(42.6%)	27(57.4%)		
Others	50(61.0%)	32(39.0%)	0.001	
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%)		
Business	17(34.0%)	33(66.0%)		
Others	25(52.1%)	23(47.9%)	<0.001	

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. Ones 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 <.001were 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/GUARDIANS (n=384)
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 HPV sub types	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 (56.5%)	66 (39.3%)	0	1 (0.6%)	6 (3.6%)		
30-40 years	82 (62.6%)	47 (35.9%)	0	0	2(1.5%)		
Less than 40 years	50 (58.8%)	31 (36.5%)	0	0	4 (4.7%)	0.69	
Tribe							
Muganda	40(51.3%)	37 (47.4%)	0	0	1 (1.3%)		
Muruli	134 (61.2%)	76 (34.7%)	0	0	9 (4.1%)		Not significant
Acholi	7 (87.5%)	1 (12.5%)	0	0	0		
Others	46 (58.2%)	30 (38.0%)	0	1 (1.3%)	2 (2.5%)	0.234	
Religion							
Protestant	99 (54.4%)	76(41.8%)	0	1 (0.5%)	6 (3.0%)		
Moslem	7 (46.7%)	8 (53.3%)	0	0	0		
Catholic	31 (53.4%)	23 (39.7%)	0	0	4 (6.9%)		Not significant
Born again	31 (66.0%)	15(31.9%)	0	0	1 (2.1%)		
Other	59 (72.0%)	22 (26.8%)	0	0	1 (1.2%)	0.287	
Marital status							Significant
Single	53 (52.0%)	46(41.1%)	0	1 (1.0%)			
Married	151 (64.5%)	73(31.2%)	0	0	2 (2.0%)		
Divorced	11(44.0%)	14 (56.0%)	0	0	10(4.3%)		
Widow	12(52.2%)	11(47.8%)	0	0	0	0.069	
					0		

EDUCATION LEVEL							Not significant
Primary	104(57.1%)				8 (4.4%)		
A level	7(53.7%)	70 (38.5%)	0	0	0		
O level	62(56.4%)	6 (46.2%)	0	1 (0.9%)	2(1.8%)		
Tertiary	34 (70.8%)	45 (40.9%)	0	0	0		
Never been to school	20 (64.5%)	14 (29.2%)	0	0	2 (6.5%)	0.550	
		9 (29.0%)					

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.

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