

HPV VACCINE – KNOWLEDGE, UTILISATION AND REASONS FOR NON USE IN ILORIN, NIGERIA.

I. F. Abdul¹, FWACS

M. J. Saka², FMCP

L. Omokanye³, FWACS

O. H. Raji³, FWACS

B. O. Lawal³, MBBS

K. T. Adesina³, FMCOG

¹Women's Health Attention Focus (WHAF), E101 Emir's Road, POBOX 4676, Ilorin, Nigeria.

²Department of Epidemiology and Community Health, College of Health Sciences, University of Ilorin, PMB 1515, Ilorin, Nigeria.

³Department of Obstetrics and Gynaecology, College of Health Sciences, University of Ilorin, PMB 1515, Ilorin, Nigeria.

Correspondences and reprint request: Dr. I. F. Abdul

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ABSTRACT/SUMMARY

BACKGROUND: Carcinoma of the cervix is a global health concern and has its highest burden in developing countries including Nigeria because of the high incidence of STIs including HPV. The recent loss of capital because of non-use of stocked HPV Vaccine at the University of Ilorin teaching hospital due expiration prompted this community based survey. The aim of this study was to evaluate the extent of knowledge and usage of HPV vaccines among women as a measure of the progress made in the HPV prevention programme in our environment.

STUDY DESIGN AND SETTING: Descriptive cross sectional questionnaire based study of educated women and illiterates in the cosmopolitan city of Ilorin, Nigeria.

MATERIALS AND METHODS: Trained questionnaire administrators interviewed the participants throughout the year 2015 after obtaining verbal informed consent. Information obtained included their educational status, knowledge and use of HPV vaccines, and reasons for non-use of the vaccine. Data was analysed using Chi-square or Fischer's exact test as appropriate and odd ratio using the statistical software INSTAT. Statistical significance was set at $P < 0.05$.

RESULTS: Awareness of HPV vaccines was significantly higher among educated women (94%) than uneducated women (4.8%)-(OR=279.70, 95% CI = 119.08, 647.60; $P = 0.0001$). No significant statistical difference was however observed in level of use of HPV vaccines between both groups of women $P = 0.1593$. HPV vaccine been expensive was the major reason for non-use among educated and uneducated women while Medical Doctors were the highest source of knowledge among users of HPV.

CONCLUSION: Usage of HPV vaccine was very low regardless of the awareness and educational status. Making the vaccine more affordable and medical doctors being more involved in advocacy will likely improve present low level of utilization.

INTRODUCTION

Carcinoma of the cervix is a global public health concern as it's the second commonest cancer in females worldwide^{1,2}. There are approximately 500,000 new cases of cervical cancer yearly and 250,000 cervical cancers related deaths². Developing countries accounts for about 80percent of the global burden of cervical cancer and it is the leading cause of cancer related mortality among women in sub-Saharan Africa^{3,4}. In Nigeria about 40 million women who are aged 15 years and older are at risk of developing cervical cancer. Currently, it is estimated that about 14,550 women are diagnosed with cervical cancer and about 9,659 die from the disease yearly^{1,5}. This represents a major challenge to public health with a likelihood of a rise in disease burden if effort towards it's prevention are not put in place⁶. The high prevalence and fatality outcome of the disease is largely due to poor preventive implementation strategy, low level of awareness, poor health seeking behaviour and inadequate health care financing^{7,8}.

Human papilloma virus which is often sexually transmitted has been shown from clinical and epidemiological evidence to be the major etiological agent in the development of cervical cancer especially 6, 11, 16 and 18 serotypes^{9,10}. However serotypes 16 and 18 are responsible for about 70% of all invasive cervical cancer¹¹. About 23.7% of women in the general population are thought to harbour cervical HPV infection at a given time¹². The transmission of genital HPV infection is influenced by age at sexual debut, number of sexual partners and acquisition of new partners, characteristics of partners and sexual networks, concurrency and serial monogamy¹³. The peak incidence of HPV infection occurs in most populations within 5–10 years of the first sexual experience and the highest prevalence rates are seen in women aged 20–24 years¹⁴. The causal mechanism is a resultant effect of HPV virus infection persistence within the nucleus of cervical cells at the transformation zone. The progression of the viral infection through the premalignant phase is mostly dependent on the immune status of the individual¹⁵. The prevention of cervical cancer includes lifestyle modification, vaccine, screening and treatment of early disease¹⁵.

The development of clinically effective and safe HPV vaccines opens up new possibilities for the control of the infection; and for lowering of the rates of anogenital cancers especially cervical cancer^{4,5}. The 2009 WHO position paper on HPV vaccines recommended they be included in routine national immunization programs as a public health priority⁴. Two HPV vaccine types are now available for the prevention of HPV-related diseases. The quadrivalent vaccine (Gardasil) targets HPV types 6, 11, 16 and 18, and the bivalent vaccine (Cervarix) targets HPV types 16 and 18. Both the quadrivalent and the bivalent vaccines have a high efficacy against HPV types 16- and 18- related cervical intraepithelial neoplasia (CIN) and cervical cancers^{1,14}. Evidence has shown that both vaccines are nearly 100% effective in preventing cervical intraepithelial neoplasia 2 (CIN), CIN 3, and condylomatous vulvar disease related to the HPV genotypes covered by the vaccines¹. According to the world health organization, Vaccination against HPV could prevent an estimated annual 240,000 cervical cancer deaths among women in resource-poor settings⁵. Nigeria government licensed the two vaccines in 2008, and the protocol is tailored towards the WHO recommendation of three doses to be administered to young girls aged 9 to 25 years at 0, 2 month and 6 months¹⁵. At the moment, there is no concrete national implementation plan in the country^{15,16}. The 2009 WHO position paper on HPV vaccines recommended they be included in routine national immunization programs as a public health priority¹⁷. However, challenges to actualizing this goal in developing countries remain. These include, low awareness and knowledge of HPV and cervical cancer, low cervical cancer screening levels, high cost of vaccine and vaccine delivery, inaccessibility to medical care, poor health system capabilities, and failure of cervical cancer to be recognized as a major health concern¹⁸.

Therefore, the objective of this study is to assess the level of awareness among women of reproductive age group, their utilization and some of their attitudes towards HPV vaccine especially in the light of the recently expired stock of HPV vaccine in our centre, the university of Ilorin teaching hospital. This will help in strengthening the cervical cancer prevention programmes at the university hospital, in kwara state, Nigeria and developing countries in general.

Illiteracy is still very common in this environment and thus the reason for including the educational status as a strong variable in this study so as to determine the best approach in the

cervical cancer prevention programme for the large group of Nigerian women especially as it relates to HPV vaccination. Most studies currently conducted in Nigeria have not included this large group of women. There may be need to design programme similar or differently according to findings in this kind of base line study as it relates to the educational status of Nigerian women.

MATERIALS AND METHODS

This study used a community based approach for the data collection targeting women at various community events like marriages and naming ceremonies which are very popular past times in this part of Nigeria. A total of 254 educated women and 164 uneducated women were successfully interviewed across the town over a period of three months January and April, 2015. All respondents were women in the age group bracket of 18 years to 50 years.

Verbal consent was obtained from all participants prior to data collection while approval to conduct the study was obtained from the state ministry of health using the Non-governmental organisation (NGO) of the lead Author called Women's Health Attention Focus (WHAF). The questionnaire administrators were volunteer final year medical students of the university of Ilorin who were trained with the W.H.O practical guide for health workers on interviewing and recording of community health surveys¹⁹.

The data analysis was done with Chi-square or Fischer's exact test as appropriate and odd ratio using the statistical software INSTAT. Statistical significance was set at $P < 0.05$.

RESULTS

There were 418 respondents recruited for the study. Table one shows that out of the total respondents 254(60.8%) were educated while 164(39.2%) were uneducated. Whereas majority of the educated women 94% had some knowledge about HPV vaccine, only 4.8% of the uneducated women had knowledge about the vaccine. This reflects that awareness of HPV vaccines was significantly higher among educated women than uneducated women (OR=279.70, 95% CI=119.08,647.60; $P=0.0001$). 95.2% of the uneducated women had no knowledge of the vaccine while only 13% of the educated women lack knowledge about the vaccine. Analysis of table 1 further reveals very low usage of HPV vaccine. Only 1.6% of the educated women had used it while majority 98.4% has never had the vaccine. None of the uneducated women had used the vaccine before. No statistically significant difference was however observed in level of use of HPV vaccines between both groups of women ($P=0.1593$). Findings from table 1 shows media is the commonest source of knowledge about the vaccine representing 81.1% among the educated women. This was followed by internet (37.8%), medical doctor (14.6%), friends (11.8%) and health workers (2.4%). However, from the uneducated women, the commonest source of information was among friends (3.6%) while

other sources of information were from media and health workers representing 1.2% and 0.6% respectively.

Table 2 shows that 7(7.9%) of the respondents who are post-secondary school leavers had used the HPV vaccine, 3(7%) of the secondary school leavers had used it, while only one (1%) of the primary school leavers had used the vaccine. Irrespective of the level of education, no significant difference was observed in knowledge and level of use of HPV vaccine among the educated women.

Findings in table 3 reveals that the commonest reason for non-usage of the vaccine among the educated women was the fact that the vaccine was expensive - 76.3%. This was distantly followed by lack of approval by partner (14.9%). Other reasons include satisfaction with pap smear alone (5.8%), fear of harmful effect of the vaccine (1.7%) and 3(1.2%) of the respondents were because their belief forbids its use. Among the non-educated women, the leading reason for non-usage of the vaccine is also because it was expensive (62.5%) while 25% was because of fear that the vaccine may be harmful. Generally, the vaccine being expensive was the major reason for non-use among educated and uneducated women.

DISCUSSION

This study evaluated the knowledge and use of HPV vaccine as related to the level of education of women of reproductive age group in Ilorin. Majority of the respondents (60.8%) have at least secondary level of education while the highest level of education of the others were primary school accounting for 39.2%. This is a direct reflection of their knowledge about the HPV vaccine as most of the educated individuals (94%) were aware of the vaccine while only 4.8% of the uneducated women had knowledge of the vaccine. This is not surprising as it's expected that knowledge improves with higher level of educational attainment¹⁴. Also, with higher level of education, there is a higher likelihood that one would have heard or read about HPV/HPV vaccine either from internet, media, at school or from other individuals like friends, health workers or relatives. Whereas, exposure to such information is limited among uneducated women owing to their relative lack of access to internet, little or no sensitization programs, and poor health seeking behaviour. Furthermore, when such health information is disseminated through the media, they are often in English language which majority of the uneducated individuals do not understand. However, this finding is not in consonance with findings from similar studies in Abuja and Lagos where it was observed that knowledge of the vaccine was equally poor among educated women^{1,20,21}.

Most of the respondents had not used the vaccine before regardless of their level of education. This is mostly attributed to the fact that the vaccine is not readily available. According to a survey carried out in Southwest Nigeria, about three out of every five respondents were willing to accept the vaccines⁵. A similar study in Italy showed that 81.7% of respondents were willing to have the HPV vaccine²³. This reflects that women are more likely to use the vaccine when it's made readily available. Unfortunately, at the moment, there is no concrete national implementation plan in the country despite the fact that the vaccine was licensed and introduced in 2009 into Nigeria²¹. High cost of the vaccine and inaccessibility to medical care are compounding factors responsible for the low level of utilization of HPV vaccine⁴. Although the vaccine is expensive, some countries in sub-Saharan Africa are receiving support from the Global alliance for vaccine initiative (GAVI). Sadly, Nigeria is yet to meet any of the two criteria

(70% coverage of DPT3 vaccine and pilot demonstration of vaccine delivery) to benefit from GAVI support²⁴. It is estimated that if the vaccine is subsidized by the GAVI Alliance, the vaccine could reach over 80% of the countries in sub-Saharan Africa¹. A reasonable strategy in significantly improving the usage and achieving a wide coverage is to incorporate the HPV vaccine into the national immunization protocol¹⁵. This reflects what is obtainable in most countries that have a successful implementation program. The resultant benefit of this approach is that it will ensure sustainable and cheap implementation since the existing immunization logistics, infrastructures and resources of the country shall be employed. It has also been observed that being knowledgeable was also related to willingness to accept HPV vaccine⁵.

The leading source of information about the vaccine is from the media among the educated women (81.1%). This finding agrees with similar studies in Lagos¹⁴. This is as a result of higher access and understanding of messages passed through the media (television, radio, newspapers) and internet. Unfortunately, most of the uneducated women have little or no access to internet and most information in the media are expressed in English language, this is mainly responsible for their lack of knowledge of HPV/HPV vaccine. Tailored community-based sensitization campaigns aimed at targeting the uneducated population, as used in Cameroon, would be effective in addressing this challenge^{25,26}. Also, active participation of key stakeholders would not only be helpful in information dissemination but also aid successful HPV vaccine implementation. This study demonstrated a high level of acceptability (inference from the respondent's submission that they don't use the vaccine mainly because of not been readily available/cost and no other major reason) in the light of poor knowledge about HPV vaccine and creates a window of opportunity for well-coordinated, multi-faceted and innovative awareness and enlightenment campaigns⁵.

CONCLUSION

Usage of HPV vaccine is very low in Ilorin regardless of educational status. Poor sensitization and knowledge among the uneducated women as well as lack of effective implementation policy for the administration of the vaccine further compounds the problem. Improvement of awareness regarding the use of HPV vaccine as one of the primary prevention of cervical cancer through a community based approach would help to target the uneducated women better. Nevertheless, efforts should be made to encourage media houses to air some of their health programs in Local languages for better understanding by uneducated citizens. This would help in achieving a wider coverage. There is an urgent need for commitment on the part of the government at all levels to ensure that the criteria to benefit from the GAVI alliance are met so that Nigeria can benefit from subsidized HPV vaccine. This would facilitate incorporation of the vaccine into national program on immunization.

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TABLE I

KNOWLEDGE AND USE OF HP VACCINE

Characteristic	N1=254	N2=164	OR	95%CI	P-Value
	Educated (%)	Uneducated (%)			
A. Knowledge					
Yes -	241 (94%)	8 (4.8%)	279.70	119.081	<0.0001
No -	13 (5.1%)	156 (95.1%)	0.004	647.60	
				0.0015	
				0.0081	
B. Use					
Yes -	10(1.6)	0(0)	7.460	0.41,130.10	0.1593
No -	250(98.4)	157(100)	0.124	0.0077,2.312	

N1 Educated Women; N2 Uneducated Women; OR = Odd Ratio
 CI=Confidence interval

Table II
Knowledge and use of HPV vaccine according to level of education.

	Characteristics	N	Knowledge Yes (%)	Use Yes (%)
1.	Primary School Leavers	108	104 (96.3)	1 (1.0)
2.	Secondary School Leavers	53	45 (84.9)	3 (7)
3.	Post-Secondary School Leavers	93	89 (95.7)	7 (7.9)

N= Number tested; P-value (knowledge)= 0.013; P-value (use)= 125

Table III
Use of HPV according to source of knowledge

	Source of Knowledge	N = 249	Use (%)
1.	Internet	104	2 (20)
2.	Media – Radio, TV, Newspapers	48	2 (20)
3.	Friends	48	2 (20)
4.	Health Workers	30	1 (1)
5.	Medical Doctors	19	3 (30)

Table IV

Reason for non-use among respondents with knowledge of HPV Vaccine

	Characteristics	N1=241	N2= 8
		Educated (%)	Un-Educated
	Reason		
1.	High cost	184 (76.3)	5(62.5)
2.	Belief forbids its use	3 (1.2)	-
3.	Partner does not approve	36 (14.9)	-
4.	Ok with Pap Smear	14 (5.8)	1(12.5)
5.	Afraid Vaccine May harm	4 (1.7)	2(25)