

**ATTITUDE AND WILLINGNESS TO ACCEPT HUMAN
PAPILLOMAVIRUS VACCINE AMONG EARLY ADOLESCENT
GIRLS IN IBADAN NORTH LOCAL GOVERNMENT AREA,
OYO STATE**

BY

MGBOH, CHINENYENWA JOSEPHINE

B.MLS (LAUTECH)

MATRICULATION NO.: I81476

**A PROJECT SUBMITTED TO THE DEPARTMENT OF HEALTH
PROMOTION AND EDUCATION, FACULTY OF PUBLIC HEALTH,
COLLEGE OF MEDICINE IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF MASTERS OF PUBLIC
HEALTH (HEALTH PROMOTION AND EDUCATION) OF THE
UNIVERSITY OF IBADAN**

FEBRUARY, 2016

CERTIFICATION

I certify that this work was carried out by Mgboh Chinenyenwa Josephine in the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan, Ibadan, Nigeria.

Supervisor

Prof. Oladimeji Oladepo

B.Sc., MPH, Ph.D (Ibadan), FRSPH (UK)

Department of Health Promotion and Education

Faculty of Public Health, College of Medicine

University of Ibadan, Ibadan, Nigeria

DEDICATION

This study is dedicated to God Almighty and to all cervical cancer patients all over the world especially in Nigeria.

UNIVERSITY OF IBADAN LIBRARY

ACKNOWLEDGEMENT

This project would not have been perfect without the kind effort of my amiable supervisor Prof. Oladimeji Oladepo who aside proofreading this work has been like a father and a mentor to me in the course of doing this study. You worked tirelessly from the inception of this work till the end to ensure it comes out the best of its kind.

To Henshaw Ansa Nta, my good friend and colleague, for your enormous contribution towards this work, for all the sleepless nights you spent proofreading my work and for your words of encouragement, thank you. I cannot forget my peers (friends and colleagues) who were ever ready to review my work and who volunteered during data collection and to other friends of mine who contributed financially and otherwise to this work, I appreciate all your efforts and kindness. Thank you all.

I appreciate Dr Adedokun and every other of my lecturers who guided me in one way or the other throughout this work. To the Ibadan North Local Government Education Board and all the schools selected for this study including the students who voluntarily participated in this study, I am grateful for your cooperation. I also appreciate the authors of the literatures consulted for this work.

I am indebted to my parents Mr and Mrs Sylvester Mgbob who have not given up on me from the day I was born till this very minute. For your unfathomed love, care and support financially, spiritually, morally and otherwise, I want to say thank you. To my siblings especially my dearest sister like no other, Mgbob Obiageli, I am grateful for the social supports you rendered throughout the period of this research.

I appreciate you all and I say thank you.

Mgbob Chinenyenwa Josephine

ABSTRACT

Cervical cancer is a global public health and reproductive health issue, ranking forth among cancer-related mortality among women globally. It is the second most common cancer in women aged 15–44 years in Nigeria. Series of studies have been carried out regarding cervical cancer, HPV and HPV vaccine in Nigeria on knowledge of, attitude towards and willingness to accept HPV vaccination of young people among parents, health workers, teachers etc., but not among early adolescents. Therefore, the study investigated the attitude and willingness to accept human papilloma virus vaccine among early adolescent girls in Ibadan North Local Government Area, Oyo State.

The descriptive cross-sectional study used five – stage sampling procedures to select 482 early adolescent girls in Ibadan North Local Government, Oyo State. 238 and 244 students from private and public schools respectively participated in the study. A validated five sections questionnaire which contained questions on socio-demographic, awareness and knowledge, attitude, factors influencing willingness and information needs was used to collect data. Respondents' awareness of cancer, cervix, cervical cancer, HPV, HPV vaccine, cervical cancer screening and STI was categorized as low if the participants have heard at most two out of the seven topical areas, moderate if they have heard about three to four of the topical areas, or high if they have heard more than four of the seven topical areas. The ten (10) knowledge questions was graded on a scale of 0-9 as low, moderate or high if respondents answered correctly at most three, four to six and more than six knowledge questions respectively. The fifteen attitudinal statements were graded on forty five point scales as negative, indifferent or positive if respondents' responses contradict, were mostly undecided or were in accordance with the expected (right) responses to the statements. Descriptive statistics, chi-square and regression were employed for data analysis with $p=0.05$.

Respondents' median age was 12 years, with majority of the respondents being of the Yoruba ethnic group (86.3%). Four out of every five respondent (80.1%) had low level of awareness on cervical cancer, its related diseases and prevention.

Most participants who were aware (83.2%) heard about HPV infection and prevention from their instructors and associates (Teachers/school, Church, peers/friends, August girls assembly, people and environment). Overall, 79.0% of the respondents' had low level of knowledge on HPV infection and prevention and majority of the respondents (85.9%) showed a positive attitudinal disposition towards HPV vaccine. Majority of the participants (84.4%) indicated their willingness to accept HPV vaccine. Self-efficacy (confidence in self to take HPV vaccine) and response effectiveness (confidence in HPV vaccination against HPV infection) (73.7%) followed by cues to action (seeing friends being vaccinated at school) (49.8%) were leading factors that may influence their willingness to accept HPV vaccine.

The study revealed high willingness to accept and positive attitude towards HPV vaccine but low level of awareness and knowledge among early adolescent girls. Therefore, awareness creation and training programmes should be organized for early adolescent girls to increase their knowledge so as to improve HPV vaccine uptake.

Keywords: HPV, cervical cancer, HPV vaccine, Early Adolescents, Willingness to accept

Word counts: 499

TABLE OF CONTENTS

CERTIFICATION	i
DEDICATION.....	ii
ACKNOWLEDGEMENT	iii
ABSTRACT.....	iv
TABLE OF CONTENTS.....	vi
LIST OF TABLES	ix
LIST OF FIGURES	x
ACRONYMS.....	x
CHAPTER ONE	1
INTRODUCTION	1
1.1 Background of the Study.....	1
1.2 Statement of the Problem	3
1.3 Significance of the Study	4
1.4 Research Questions	4
1.5 Study Goal.....	4
1.6 Objectives.....	5
1.7 Hypothesis:.....	5
1.8 Variables:	5
CHAPTER TWO.....	6
LITERATURE REVIEW	6
2.1 Human Papilloma Virus (HPV) Infection.....	6
2.2 Epidemiology of HPV Infection and Associated Diseases	7
2.3 Diagnosis, Management and Prevention of HPV Infection	8
2.3.1 Diagnosis.....	8
2.3.2 Management of HPV	10
2.3.3 HPV Prevention	10
2.4 Knowledge, Awareness of and Attitude towards HPV and HPV Vaccine among Female Adolescents and Mothers	13
2.5 Adoption of HPV Vaccine Among Population.....	14

2.6	Conceptual Framework	15
2.6.1	Concepts of HBM	15
2.6.2	Application of the Model to Current Study	16
CHAPTER THREE		20
RESEARCH METHODOLOGY.....		20
3.1.	Study Design:	20
3.2	Study Location	20
3.3	Study Population:	21
3.4	Inclusion and exclusion criteria:	21
3.5	Sample Size:	21
3.6	Sampling Techniques	22
3.7	Instrument for Data Collection:.....	23
3.8	Validity	23
3.9	Reliability	23
3.10	Data Collection Procedure	24
3.11	Data Management and Analysis	26
3.12	Ethical Consideration and Approval:	27
3.13	Limitations of the Study	27
3.14	Potential Conflict of Interest	27
CHAPTER FOUR.....		28
RESULTS		28
4.2	Socio-demographic characteristics of respondents' parents	30
4.3	Family history of cervical cancer as well as orthodox vaccination history of respondents.....	32
4.4	Respondents' awareness of HPV infection, associated diseases and prevention as well their sources of information	34
4.5	Knowledge of HPV infection, associated diseases and prevention among respondents.....	37
4.6	Attitudinal disposition towards HPV vaccine among respondents	40
4.7	Willingness to accept HPV vaccine and factors that influence willingness among respondents.....	43

4.8	Differences in willingness to accept HPV vaccine between respondents of Socio-demographic groups and knowledge level	47
4.9	Test of hypothesis.....	49
4.10	Informational needs with regards to HPV Infection, Cervical.....	51
	Cancer and HPV Immunization among respondents	51
	CHAPTER FIVE	53
	DISCUSSION, CONCLUSION AND RECOMMENDATION	53
5.1	Knowledge/Awareness of HPV, HPV associated diseases and prevention.....	53
5.2	Attitude towards Acceptance of HPV Vaccination.....	55
5.3	Perceived Factors Affecting Willingness to Accept HPV Vaccination	56
5.4	Implications of the findings for Health Promotion and Education.	57
5.5	Conclusion.....	58
5.6	Recommendations	59
5.7	Suggestion for further research	60
	REFERENCES	61
	APPENDICES	68

LIST OF TABLES

Table 4.1:	Socio-demographic characteristics of respondents.....	29
Table 4.2:	Socio-demographic characteristics of respondents' parents.....	31
Table 4.3:	Vaccination history of respondents.....	33
Table 4.4a:	Respondents' awareness of HPV infection, associated diseases and prevention	35
TABLE 4.4b:	Level of awareness and overall major sources of information on HPV, Cervical Cancer and preventive measures of respondents.....	36
TABLE 4.5a:	Knowledge of HPV infection and prevention among respondents.....	38
Table 4.5b:	Level of knowledge of HPV infection and vaccination among respondent.....	39
Table 4.6a:	Attitude towards acceptance of HPV vaccination among respondents.....	41
Table 4.6b:	Attitudinal disposition towards HPV vaccination among respondents.....	42
Table 4.7:	Perceived factors influencing willingness to accept HPV vaccination among respondents.....	45
Table 4.8:	Differences in willingness to accept HPV vaccine between respondents' socio-demographic groups and knowledge level.....	48
Table 4.9:	Relationship between respondents' attitude towards HPV, cervical cancer and HPV vaccine and their willingness to accept HPV vaccine.....	50
Table 4.10:	Respondents informational needs about HPV, cervical cancer and HPV immunization.....	52

LIST OF FIGURES

Figure 2.1: Schematic diagram of HBM, modified in relation with willingness to accept HPV vaccine.	19
Figure 4.1: Willingness to accept HPV vaccine among respondents	44
Figure 4.2: Most Influencing Factors among Respondents	46

ACRONYMS	MEANINGS
ACIP	- Advisory Committee on Immunization Practices
 AIS	- Adenocarcinoma In Situ
AGC-NOS	- Atypical Glandular Cells, Not Otherwise Specified
ASCUS	- Atypical Squamous Cells of Undetermined Significance
CC	- Cervical Cancer
CDC	- Center for Disease Control and Prevention
CIN	- Cervical Intraepithelial neoplasia
FLHE	- Family Life and HIV Education
HC2	- Hybrid Capture 2
HIV	- Human Immunodeficiency Virus
HPV	- Human papillomavirus
HrHPV	- High risk Human papillomavirus
HSIL	- High Grade Squamous Intraepithelial
JSS	- Junior Secondary School
LEEP	- Loop Electrosurgical Excision Procedure
LGSIL	- Low Grade Squamous Intraepithelial
NPI	- National Programme on Immunization
SSS	- Senior Secondary School
STD	- Sexually Transmitted Diseases
WHO	- World Health Organization

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Cancer is a chronic and fatal disease that affects people of all ages with preponderance in the elderly across all regions of the world. Every year, more than 10 million people are diagnosed with cancer and over half of those diagnosed, live in the developing world (Asad M. et al, 2014), including Nigeria. Cancer is a leading cause of death worldwide, accounting for 8.2 million deaths in 2012 (World Health Organization, 2015b) . The most common causes of cancer death in females are cancers of the breast, colorectum, lung, cervix, and stomach (World Health Organization, 2015a)

Cervical cancer is a global public health and reproductive health issue, ranking forth among cancer-related mortality among women. It accounts for 288,000 deaths globally (Cervical Cancer Global Crisis Card, 2013). Cervical cancer is caused by sexually acquired infection with certain types of Human Papillomavirus (HPV). Two HPV types (16 and 18) out of over 100 different known types (Rama et al., 2010) cause 70% of cervical cancers and precancerous cervical lesions (World Health Organization, 2015c). About 3.5% of women in the general population are estimated to harbor cervical HPV-16/18 infection at any given time (ICO Information Centre on HPV and Cancer, 2014). In a study conducted among 932 women with valid HPV results in Ibadan, 68(7.0%) were found to have positive Pap test and/or abnormal cervical findings. HPV35, 31, 56 and 58 are also found to be common in some non-African countries (Okolo , 2010). HPV infection can occur at any age and has been reported in healthy young children (Cutts , 2007). The available strategy for prevention and options for treatment of cervical cancer globally include; either prevention of HPV infection de novo with primary prevention or through the detection of intraepithelial cancer precursors prior to the development of invasive disease, also known as the secondary prevention (Awolude, et. al, 2013).

Vaccination against all the vaccine preventable diseases remains one of the most effective primary prevention strategies ever in the world. Human papillomavirus vaccine was introduced in 55 countries by the end of 2013 (World Health Organization, 2015d). By the end of 2013, more than 40 countries had introduced HPV vaccine in their national immunization programmes (only three of them are developing countries). Most of the countries with the highest risk have not introduced the vaccine by November of 2013 (Bloem , 2014).

Early adolescent girls (9-13 years old) are the primary target population for HPV vaccination just before any initiation of sexual activity. The recommended target ages for HPV vaccination is 9-13 years, vaccination of secondary target populations of older adolescent females or young women (“catch-up” immunization can also be provided to females aged 13 to 26 years) is recommended only if this is feasible, affordable, cost effective, does not divert resources from vaccinating the primary target population or effective cervical cancer screening programmes, and if a significant proportion of the secondary target population is likely to be naive to vaccine related HPV types (Bloem , 2014). The median age of sexual debut among Nigerian female has been found to be 16.2years, this means that in about 4 years down the line, the average 12-year old ‘kid’ of today might start becoming sexually active, hence increasing their chances of being exposed to human papillomavirus (HPV) when they are not well guided of sexuality education. Their being vaccinated today is a guarantee that they will not be part of the statistics of positive cervical cancer cases tomorrow (Breast without Spot, 2014).

Studies on awareness, knowledge, attitude, perception and practice of cervical cancer and prevention strategies has been carried out more in developed countries than in developing countries. A Systematic Review on Knowledge and Awareness of HPV Vaccine and Acceptability to Vaccinate in Sub-Saharan Africa (Perlman , 2014) revealed that levels of awareness were mixed, while 11 studies demonstrated high awareness, nine studies demonstrated low awareness and two studies demonstrated moderate awareness. Levels of knowledge of cervical cancer and HPV were consistently low. Of the 16 studies examining knowledge of cervical cancer, HPV and HPV vaccine, all noted low levels of knowledge, three reported no knowledge, and two reported moderate knowledge. Only one study specified a moderately high level of knowledge of HPV vaccine. Also, about

Willingness and Acceptability of HPV Vaccine and Cervical Cancer Screening; the review stated that categories of willingness varied across studies: willingness to recommend HPV vaccine (five studies); willingness to get vaccinated (four); willingness to get daughter vaccinated (four); willingness to participate in vaccine trials (one); “interest” in the vaccine for daughters (one); and “interest in learning more about the vaccine” (one). All studies reported high rates of willingness in their respective categories. Twelve studies examined acceptability levels of HPV vaccine and one study examined acceptability of cervical cancer screening. All 12 studies reported high levels of acceptability of HPV vaccine. Most of the above reviewed studies and other studies especially in Nigeria did not cover substantially the view of the main primary target (early adolescents; 9 – 13 years) for the vaccination in terms of their knowledge, attitude and willingness to accept the vaccine. Exploring what attitudinal factors are associated with adolescent girls’ willingness to get vaccinated may help identify and understand the factors that influence their willingness to accept HPV vaccine for better intervention planning.

1.2 Statement of the Problem

Cervical cancer is the second most common cancer in women worldwide and the second most common cancer in women aged 15–44 years in Nigeria (ICO, 2014, Nnodu , 2010). Half a million women develop cervical cancer annually and more than half of these individuals die from the disease (Aminu et al, 2014; Ezenwa et al., 2013). An estimated 14,089 women are diagnosed with cervical cancer every year and more than half (58.8%) of those with the cancer eventually die from the disease (ICO Information Centre on HPV and Cancer, 2014).

During the tenure of a former Nigeria’s Minister of health in 2008, it was announced that HPV vaccine was being considered for use in vaccinating young adolescents. Before and after the announcement, series of studies had been carried out regarding cervical cancer, HPV and HPV vaccine in Nigeria. These studies addressed more of knowledge of, attitude towards and willingness to accept vaccination of young people among parents, health workers, teachers and young adults (Ezenwa, et al, 2013, Odetola & Ekpo, 2012) in Nigeria but not among early adolescents. These studies suggested an overall positive response towards HPV vaccination of young adolescent girls.

Unfortunately, the views of early adolescents have rarely been addressed on this issue in Nigeria. A study conducted among Hispanic mothers and high school girls (Morales-campos , 2013) revealed that although parents are usually the decision-makers regarding vaccination, some vaccinated girls wished they had participated with their parents in the decision to be vaccinated. Studies on vaccine acceptability have been explored in some other African and non-African countries among this HPV vaccine primary target group (Remes , 2012, Turiho , 2014, Katahoire, et, al. 2013, Kilic et, al, 2012, Choi, et, al. 2014) not minding their age, such studies are rare in Nigeria. In addition, occurrences such as vaccine rejection and low uptake, as seen in the case of polio rejection in Kano State in 2003, (Cohen, 2007) leading to wastage of time and resources need to be avoided, hence the need for this study.

1.3 Significance of the Study

The findings from this study would help in highlighting information needs of adolescents which in turn may increase uptake of HPV vaccines. It will guide programme implementers on the willingness and desire of the girls and thus the best approach if the vaccines will be rolled out at population level. It will also contribute positively to the expansion of knowledge in the area of adolescent vaccination and also serve as an important reference tool for future researchers in the field.

1.4 Research Questions

- What is the level of knowledge of early adolescent girls in Ibadan north Local Government Area on Human papilloma virus, cervical cancer and HPV vaccine?
- What is the attitude of early adolescent girls towards acceptance of HPV vaccine?
- What factors influence respondents' willingness to accept HPV vaccine?
- What type of information would early adolescent girls need to guide their decision in taking up HPV vaccines?

1.5 Study Goal

The goal of this study was to determine the attitude and willingness to accept human papilloma virus vaccine among early adolescent girls in Ibadan North Local Government Area, Oyo State.

1.6 Objectives

The specific objectives of this study were to:

- Determine the level of knowledge of early adolescent girls in Ibadan north Local Government Area on Human papilloma virus, cervical cancer and HPV vaccine.
- Determine the attitude towards Human papilloma virus vaccination among early adolescent girls in Ibadan north Local Government Area.
- Identify factors that can influence willingness to accept Human papilloma virus vaccination among early adolescent girls in Ibadan north Local Government Area.
- Identify the type of information that early adolescent girls need to inform their decisions in taking up HPV vaccine.

1.7 Hypothesis:

HO: There is no association between early adolescent girls' attitude and willingness to accept Human papilloma virus vaccine.

1.8 Variables:

Independent variables include socio-demographic characteristics of respondents such as age, type of school, level of education, family history of cervical cancer, previous experiences with school-based/health-center vaccinations, parental educational status, parents's occupation, as well as knowledge on HPV infection, HPV vaccine and cervical cancer and attitude towards HPV vaccine while dependent variables are the respondents' willingness to accept HPV vaccine.

CHAPTER TWO

LITERATURE REVIEW

2.1 Human Papilloma Virus (HPV) Infection

Genital Human papillomavirus (HPV) is one of the most common preventable sexually transmitted infections in sexually active adolescents and young women worldwide (Bruni et al., 2010; Scaparrotta & Chiarelli, 2015), although HPV can occur in women of all age groups (Dahlström, et. al, 2010). The incidence of HPV infection is unknown exactly, but it is estimated that globally 75% of individuals (males and females) will experience an HPV infection at least once in their lifetime, with the highest rates of infection occurring in individuals under the age of 25 (PATH | RHO, 2012; Ezenwa et al., 2013). Over 50% to 80% of sexually active women are exposed to at least one HPV type during their lifetime (Anoud et al., 2012). In a meta-analysis conducted by researchers in Spain, a global HPV prevalence of 11.7% was reported. The HPV prevalence in North America and Europe was estimated at 11.5% and 14.2%, respectively while the prevalence in Africa was estimated at 21.1% with sub-Saharan Africa topping the list at 24% (Bruni et al., 2010)The high prevalence of HPV in sub-Saharan Africa was attributed to impairment in cellular immunity as a result of chronic cervical inflammation, parasitic infection, micro-nutrient deficiency, and HIV, which are very prevalent in this region. In Nigeria, it is worth noting that HPV prevalence is high across all female age groups but it is highest among 15–23 year olds.(World Health Organization Information Centre on HPV and Cervical Cancer, 2014)

There are over 100 different viral genotypes of HPV (Rama , 2010); they are differentiated based on their genetic sequence of the outer capsid protein L1. While most of HPV types infect the cutaneous epithelium and cause common skin warts, about 40 types infect the mucosal epithelium; genitals and oropharynx (Matsumoto, 2010). These forty types are

further divided into high-risk HPV; types 16 and 18 being the most common and low-risk HPV; types 6 and 11 being the most common of them. Most genital infections are asymptomatic, transient, and resolve spontaneously without any invasive disease (Makwe & Rose Ihuoma Anorlu, 2011) but persistence of infection with HPV high risk types 16 and 18 is accounts for the onset of cervical cancer in approximately 70% of cases of cervical cancer worldwide (Kaarthigeyan, 2012)

Cervical cancer is the second most common cancer in women worldwide and the second most common cancer in women aged 15–44 years in Nigeria.(ICO, 2014, Nnodu , 2010). Half a million women develop cervical cancer annually and more than half of these individuals die from the disease (Aminu et al, 2014; Ezenwa et al., 2013). In 2008, more than 270,000 women died of cervical cancer worldwide, nearly 85% of them in developing countries (ICO, 2014, Nnodu, 2010). Each year, 6% of the nine million new cases of all cancers worldwide and 20% to 24% of all cancers in women in Latin America, South-west Asia, and sub-Saharan Africa are attributable to HPV infection (Ezenwa et al., 2013). The incidence rate of cervical cancer in Nigeria is 250/100,000 (ICO Information Centre on HPV and Cancer, 2014, Nnodu , 2010). The incidence of HPV in women with cervical cancer is reported to be 24.8% (Nnodu , 2010). Most cases of cancer of the cervix, especially in developing countries, present at advanced stages when curative measures are unlikely to be successful (Nnodu , 2010). Eighty-six percent of cervical cancers are seen in developing countries. There has been a 75% decrease in the incidence and mortality of cervical cancer in developed countries due to screening programs and human papilloma virus vaccines for cervical cancer in the last 50 years (Centre for Disease Control and Prevention, 2012).

2.2 Epidemiology of HPV Infection and Associated Diseases

HPV infection occurs worldwide, human beings are the only natural reservoir. The infectious cycle of the human papilloma virus begins when infectious particles breach the epithelium of the lower anogenital tract and enter basal epithelial cells. Basal stem cells then divide and mature vertically through the epithelium without further division. The virus replicates in suprabasal/squamous cells and is released into the environment when the superficial cells desquamate. The E6 and E7 viral proteins are critical in the viral

replication process and differences between these proteins in the high and low risk HPV types determine interactions with cell cycle proteins (pRb and p53), which in turn determine cellular proliferation or malignant transformation (Sexually Transmitted Infection Education Foundation, 2013). HPV can be transmitted by direct contact usually frequent sexual activities (Karthigeyan, 2012; Matsumoto, 2010; National Cancer Institute, 2015b) be it intercourse or non-penetrative sexual activity with infected person. Very rarely, it can be transmitted through nonsexual routes such as from woman to a new born infant at the time of birth probably from an infected birth canal (Sexually Transmitted Infection Education Foundation, 2013, Matsumoto, 2010). Although the period of communicability is unknown, it is presumed to be communicable during the acute infection and during persistent infection. The latency period of genital HPV infection is extremely variable. Often, warts will appear after 3 to 6 months, but latency periods of many months or even decades have been reported (Sexually Transmitted Infection Education Foundation, 2013). The primary risk factor for HPV is sexual behavior, including lifetime and recent sex partners. Other risk factors include early first sexual initiation, multiple sexual partners, high risk partners, tobacco use, immune suppression due to Human Immunodeficiency Virus (HIV), other diseases, chemotherapy, using birth control pills for a long time (five or more years), having given birth to three or more children (Centers for Disease Control and prevention, 2012), early age at first birth, failure to be screened and treated for precancerous lesions and infection with HIV or other sexually transmitted infections (e.g., herpes virus or *Chlamydia trachomatis*) (PATH | RHO, 2012)

2.3 Diagnosis, Management and Prevention of HPV Infection

2.3.1 Diagnosis

High risk HPV (HrHPV) testing a more sensitive test for detecting risk of high-grade abnormalities and the conventional cytology test (Pap test), which is generally a more specific test, are most effective clinical used diagnosis. HPV test alone does not detect cell abnormality. HrHPV testing is performed in conjunction with cytology using liquid-based cytology (LBC). This allows testing for both cytology and HrHPV on one cervical smear sample. HPV tests approved by the US Food and Drug Administration (FDA) for three cervical screening indications:

- For follow-up testing of women who seem to have abnormal Pap test results,
- for cervical cancer screening in combination with a Pap test among women over age 30, and for
- use alone as a first-line primary cervical cancer screening test for women ages 25 and older (National Cancer Institute, 2015a).

Pap test is medical test used to check the cervix for abnormal cells that could turn into cervical cancer and the results are reported as either “normal,” “unclear,” or “abnormal.” A normal result means that no cell changes were found on the cervix. But there is still need to get Pap tests in the future.

An unclear Pap test result which can also be described as: equivocal, inconclusive or ASC-US, this means: that cervical cells look like they could be abnormal. HPV or any life changes such pregnancy, menopause, or an infection could be a cause. The HPV test can help find out if your cell changes are related to HPV. Abnormal test result means that changes were found in the cells of the cervix. These changes are likely caused by HPV. It may be minor (low grade) or serious (high grade) (Centers for Disease Control and Prevention, 2015).

The most frequently used HPV serologic assays are virus-like particle (VLP)-based enzyme immunoassays other include polymerase chain reaction (PCR) or Hybrid Capture 2 (HC2) techniques for HPV detection. These tests detect 13-14 high-risk types (HPV 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66, 68). Test results are reported as positive or negative for any of the types; some tests specifically identify HPV 16 and 18 (Matsumoto, 2010). These tests are approved for triage of Papanicolaou (Pap) test results (ASC-US, atypical cells of undetermined significance) and in combination with the Pap test for cervical cancer screening in women 30 years of age and older. The tests are not clinically indicated nor approved for use in men.

Women with ASC-US/LSIL smears who test positive for HrHPV are referred to colposcopy. Women who are found to be HrHPV negative can be followed up with repeat cytology testing at 12 months. Following a negative cytology result at 12 months, a woman can return to normal 3-yearly screening (Sexually Transmitted Infection Education Foundation, 2013).

2.3.2 Management of HPV

There is no specific treatment for subclinical HPV infections, most of which resolve spontaneously (Sexually Transmitted Infection Education Foundation, 2013) However, the genital warts, other types of warts, benign respiratory tract tumors, precancerous changes at the cervix, and cancers resulting from HPV infections can be treated. Methods commonly used to treat precancerous cervical changes include cryosurgery (freezing that destroys tissue), LEEP (loop electrosurgical excision procedure, or the removal of cervical tissue using a hot wire loop), surgical conization (surgery with a scalpel, a laser, or both to remove a cone-shaped piece of tissue from the cervix and cervical canal), and laser vaporization conization (use of a laser to destroy cervical tissue)(National Cancer Institute, 2015a). Warts and other changes caused by HPV could be treated taking into cognizant the site, age, and physiological status of the patient using topical chemicals or drugs, excisional surgery, cryosurgery, electrosurgery, and laser surgery. The treatment could be Patient applied e.g Imiquimod (Aldara 5% cream) or Podophyllotoxin solution; or Provider administered e.g Cryotherapy; Trichloroacetic acid, Surgical removal, Laser therapy, or Diathermy (Sexually Transmitted Infection Education Foundation, 2013).

2.3.3 HPV Prevention

HPV transmission is influenced by sexual activity and age. Almost 75% of all sexually active adults are likely to be infected with at least one HPV type(Kaarthigeyan, 2012), prevention strategies include primary prevention which is principally vaccination followed by secondary prevention which could also be referred to as behavioral control.

2.3.3.1 HPV Behavioural Control

HPV transmission can be prevented by considering all the risk factors associated with HPV infection and cervical cancer then cultivate a behavior that will be targeted to reducing them. Self-efficacy which is rooted in Bandura's social cognitive theory is important tool in exhibiting such control. It refers to the conviction that one can successfully execute the behavior required to produce the outcome. Looking at the risk factors which were previously stated such as sexual behavior, including lifetime and recent sex partners, early first sexual initiation, multiple sexual partner; high risk partners, tobacco use, immune suppression due to Human Immunodeficiency Virus (HIV) ,other diseases, using birth control pills for a long time (five or more years), having given birth

to three or more children (Centers for Disease Control and prevention, 2012), early age at first birth, failure to be screened and treated for precancerous lesions, infection with HIV or other sexually transmitted infections (e.g., herpes virus or *Chlamydia trachomatis*)(PATH | RHO, 2012), there is no doubt that majority of the risk factor are behavioral and could be controlled. Condom use may lower the chances of passing HPV to a new partner, if used with every sex act, from start to finish. But HPV can infect areas that are not covered by a condom, so condoms may not fully protect against HPV (Centers for Disease Control and Prevention, 2015).

2.3.3.2 Vaccination

Two vaccines have been developed for the prevention of HPV infection, and both vaccines are offered as a 3-dose series that is typically completed over the course of 6 months. Gardasil (Merck & Co Inc, Whitehouse Station, NJ), the quadrivalent HPV vaccine, provides immunogenicity against HPV genotypes 6, 11, 16, and 18. Cervarix (GlaxoSmithKline Biologicals, Rixensart, Belgium), the bivalent HPV vaccine, provides coverage against HPV genotypes 16 and 18. The latter two genotypes are associated with the vast majority of cases of cervical cancer and advanced cervical intraepithelial neoplasia (CIN) worldwide (Trim, Nagji, Elit, & Roy, 2012). Genotypes 6 and 11 are associated with the majority of cases of condyloma acuminata (ie, genital warts) are offered as a 3-dose series that is typically completed over the course of 6 months. Gardasil (Merck & Co Inc, Whitehouse Station, NJ), the quadrivalent HPV vaccine, provides immunogenicity against HPV genotypes 6, 11, 16, and 18.

Cervarix (GlaxoSmithKline Biologicals, Rixensart, Belgium), the bivalent HPV vaccine, provides coverage against HPV genotypes 16 and 18. The latter two genotypes are associated with the vast majority of cases of cervical cancer and advanced cervical intraepithelial neoplasia (CIN) worldwide (Centre for Disease Control and Prevention, 2012). Genotypes 6 and 11 are associated with the majority of cases of condyloma acuminata (ie, genital warts).

The CDC's Advisory Committee on Immunization Practices (ACIP) began to recommend universal vaccination against HPV for girls and women in 2006. The ACIP recommends that all girls aged 11 to 12 years receive the HPV vaccine series, and that "catch-up" immunization be provided to females aged 13 to 26 years (Centre for Disease Control and

Prevention(CDC), 2010). If the patient's social history indicates sexual precocity, the vaccine can be administered as early as age 9 years, at the provider's discretion. Although this administration schedule is designed to promote vaccination before the onset of sexual activity, individuals who are already sexually active or infected with HPV should also receive the vaccine. The vaccine will provide protection against HPV strains that the sexually active adolescent may not have contracted, but it will not protect against current HPV infections in the adolescent.

The quadrivalent and bivalent HPV vaccines are approximately 93% to 98% effective in reducing the occurrence of high-grade CIN caused by HPV genotypes 16 or 18 within 3 years of vaccination. Both HPV vaccines have also demonstrated cross-protection against the non-vaccine oncogenic serotypes (i.e., HPV genotypes 31, 33, 45, 52, 58). In addition, both HPV vaccines are highly immunogenic in boys and men (ie, >99% immunogenicity in recipients of either the quadrivalent or bivalent vaccine), and vaccination with the quadrivalent vaccine demonstrates 90% efficacy in reducing external genital lesions related to HPV genotypes 6, 11, 16, and 18 (Giuliano , 2011).

In October 2011, the ACIP recommended universal immunization of boys aged 11 to 12 years with 3 doses of the quadrivalent HPV vaccine. As with girls, providers can start immunizing boys at age 9 years if the boys are considered at high risk, and providers are advised to offer catch-up immunization for boys between ages 13 and 26 years. The quadrivalent HPV vaccine appears to be well-tolerated, with the majority of adverse events being mild to moderate localized injection-site reactions. Post-licensure studies in females have revealed an increased likelihood of syncope on the day of vaccine administration (Velicer, 2011). As a result of that finding, the ACIP advises that girls and woman be observed for 15 minutes in the office after HPV vaccine administration. Although no analogous studies have been performed in males, similar safety measures should be taken when boys and men receive HPV vaccination.

A focus group discussion conducted in Tanzania showed that some participants suggested vaccinating much younger girls: "a ten-year-old child has already started with sex, the ones who have not started are those aged seven" (Remes , 2012). In Malaysia, a study conducted among school girls in Melaka, by Al-naggar, et. al, (2012) revealed that free vaccine for secondary school girls aged 13 years and government hefty promotion of the

vaccine in the media and public campaigns contributed to the high prevalence (77.9%) of HPV vaccination among school girls in Melaka as against a preceding Malaysian study among general population that disclosed that the prevalence of HPV vaccination was minimal (51.5%) (Al-Naggar and Bobryshev, 2011). Al-naggar et. al, suggested the difference may be due to the different populations of the studies. Relatedly, Bynum (2011) reported that age significantly influenced the practice of HPV vaccine in the study conducted among general Malaysian population.

2.4 Knowledge, Awareness of and Attitude towards HPV and HPV Vaccine among Female Adolescents and Mothers

Knowledge of HPV and awareness of HPV vaccines by the general populace varies (Makwe & Rose Ihuoma Anorlu, 2011, Perkins, et. al, 2011). Different regions of the world have reported different awareness levels regarding HPV and its potential to cause cancer in the general public. Studies in the USA documented high levels of awareness to HPV and its vaccine in the general populace. One study documented an awareness level of 71% in Latino women in New Jersey.

According to a study in Brazil, 50% of all their study subjects had some knowledge of HPV or cervical cancer. In a survey of British women aged 16–97 using an open question to elicit the causes of cervical cancer, only 2.5% mentioned HPV and 7% mentioned an unspecified sexually transmitted virus/infection (Al-dubai , 2010). In a study in Malaysia, only 26% of the study population had ever heard about HPV or its vaccine and they noted that lack of awareness constituted an important barrier to the use of the vaccine in this country.

Reports from various studies in Nigeria have shown that awareness of HPV infection and vaccine acceptability among the general public are very low even among health care providers. One study reported poor knowledge of the HPV vaccines among female nurses at Lagos University Teaching Hospital (Makwe & Rose Ihuoma Anorlu, 2011). This study noted that despite this poor knowledge, most of the nurses expressed a strong desire to be vaccinated and their intention to recommend the vaccine for preadolescent girls. The main reason given overall for not recommending the vaccines was lack of information. In another study in Abuja, the authors found a low level of awareness regarding HPV and cervical cancer among the urban and rural dwellers of Gwagwalada Area Council.(Nnodu

, 2010) Research has shown that knowledge of HPV is directly correlated to vaccine acceptance (Makwe & Rose Ihuoma Anorlu, 2011, Dahlström , 2010).

2.5 Adoption of HPV Vaccine Among Population

Despite mounting evidence of the benefits of HPV vaccination, the numbers of eligible patients who begin or complete the vaccine series remain startlingly low. Data consistently demonstrate a need for increased education of patients, parents, and providers regarding the benefits of the HPV vaccines and common misconceptions about their use (Centre for Disease Control and Prevention, 2012). The few who have accepted and either taken the vaccine or vaccinated their daughters are seen to be among those who have had positive attitude on other vaccine or who had substantial knowledge about the HPV vaccine (Haesebaert et al., 2012). A study have shown that initiation of HPV vaccine are sometimes driven after some people had observed that the those who received first dose of the vaccine were not harmed (Turiho et al., 2014). Although free vaccination have been found to promote the need for vaccination and vaccination coverage (Lamontagne et al., 2011), there is still evidence that vaccinated girls may tend to oppose the vaccination process due to post vaccination feelings such as becoming weary after one or two doses, as observed in a Kenya longitudinal survey (Vermandere et al., 2013).

In a survey of adolescent vaccination coverage, the most commonly reported reasons for not receiving vaccination against HPV were lack of knowledge about the vaccine, failure of the provider to recommend the vaccine, lack of school vaccine requirements, and no reported sexual activity in the adolescent patient (Stokley , 2011). A meta-analysis of HPV vaccine acceptability among adolescents, young adults, and parents revealed that, across surveys, 42% of respondents were aware of HPV, and 21% of respondents knew that HPV infection was common. The knowledge that HPV can cause cervical cancer was generally low (ie, 44% across surveys), but this knowledge level varied greatly depending on the particular survey. In addition, surveys revealed that inaccurate perceptions of HPV vaccine safety continue to be major barriers to patient and parental acceptance of vaccine administration (Stokley , 2011) For effective adoption and utilization of HPV vaccination, there is need for education/sensitization messages to also be extended to the young girls who are the primary target for the vaccination to lower vaccine rejection.

2.6 Conceptual Framework

Health Belief Model (HBM) was first developed in the 1950's by social psychologists Hochbaum, Rosenstock and Kegels working in the U.S. Public Health Services (University of Twente, 2012). The model attempts to explain and predict why individual may accept or reject preventive health services or adopt healthy behavior (EuroMed Info, 2015).

2.6.1 Concepts of HBM

Specifically, the HBM consists of the following dimensions (Janz & Becker, 1984)

Perceived susceptibility.-Individuals vary widely in their feelings of personal vulnerability to a condition (in the case of medically-established illness, this dimension has been reformulated to include such questions as estimates of susceptibility, belief in the diagnosis, and susceptibility to illness in general'). Thus, this dimension refers to one's subjective perception of the risk of contracting a condition.

Perceived severity.-Feelings concerning the seriousness of contracting an illness (or of leaving it untreated) also vary from person to person. This dimension includes evaluations of both medical/clinical consequences (e.g., death, disability, and pain) and possible social consequences (e.g., effects of the conditions on work, family life, and social relations).

Perceived benefits.-While acceptance of personal susceptibility to a condition also believed to be serious was held to produce a force leading to behavior, it did not define the particular course of action that was likely to be taken; this was hypothesized to depend upon beliefs regarding the effectiveness of the various actions available in reducing the disease threat. Thus, a "sufficiently-threatened" individual would not be expected to accept the recommended health action unless it was perceived as feasible and efficacious.

Perceived barriers.-The potential negative aspects of a particular health action may act as impediments to undertaking the recommended behavior. A kind of cost benefit analysis is thought to occur wherein the individual weighs the action's effectiveness against perceptions that it may be expensive, dangerous (e.g., side effects, iatrogenic outcomes), unpleasant (e.g., painful, difficult, upsetting), inconvenient, time-consuming, and so forth.

Cues to action: the model posits that a cue or trigger is necessary for promoting engagement in health promoting behaviours. Cues to action can be internal or external. Physiological cues e.g.pains;symptoms are example of internal cues to action while

example of external may include; mass media communications, interpersonal interactions, or reminder postcards from health care providers. Unfortunately, few HBM studies have attempted to assess the contribution of “cues” to predicting health actions.

Self-efficacy: it refers to an individual’s perception of his or her competence to successfully perform behaviour. Self-efficacy was added to the health belief model in an attempt to better explain individual differences in health.

Finally, it was assumed that diverse demographic, sociopsychological, and structural variables might, in any given instance, affect the individual’s perception and thus indirectly influence health-related behavior.

2.6.2 Application of the Model to Current Study

It has been used in several studies to identify the importance of vaccination behavior (Brewer & Fazekas, 2007). In this study, the six main construct of HBM that describes what influences people decision in making moves towards health prevention and maintenance will be employed to understand attitudes and willingness to accept HPV vaccine among female early adolescents. Willingness to accept and uptake of HPV vaccine which is aimed at preventing cervical cancer diseases tends to be high when people

- Believe they are at risk of that HPV and subsequently cervical cancer; **Perceived susceptibility** to the Human papilloma virus and cervical cancer
- Consider the HPV and cervical cancer to be terrifying and has a severe consequence; **Perceived seriousness** of Human papilloma virus and cervical cancer
- Believe that taking actions such as vaccinating early adolescent girls before sexual debut and going for regular screening will reduce their susceptibility to the disease; **Perceived benefits** of Human papillomavirus vaccine
- Focus more on the benefits of the disease prevention which save cost and extends longevity than the potential constraint such as the cost of the vaccine; **Perceived barriers** to Human papillomavirus vaccination
- Subjected to factors that are encouraging to action such as introducing school health education on cervical cancer and HPV or get educated on the subject matter

via mass media and campaigns and/or producing movies that educate people of the subject matter; **Cues to action**

- Assertive in taking action towards preventing HPV and cervical cancer; Respondents' **Self-Efficacy** on HPV vaccine acceptance

Personal beliefs and perceptions about a disease and the available interventions to decrease its occurrence is the fundamental notion described in HBM. These beliefs and perceptions which vary from person to person are influenced by several modifying factors such as individual's socio-demographic characteristics, self-efficacy and cues to action (events, people or things that move people to change their behaviour). A young girl who perceives she is at risk of HPV and subsequently cervical cancer, (though not yet at the age where cervical cancer can manifest) and also sees cervical cancer to be a serious disease is more likely to accept HPV vaccine. Moreover, girls who are aware of the seriousness of cervical cancer, believes and appreciates the benefits of HPV vaccine against that cervical cancer, will be more willing to accept the HPV vaccine. Turiho et al., (2014) reported that one of the motivations for HPV acceptability among vaccinated girls was appreciation of its preventive role against cervical cancer which they were meant to understand to be painful, deadly and associated with future childlessness. Although lack of information, concern about efficacy, negative health consequences (such as side effects, infertility and unsafe administration), inconvenience of three doses, worries about encouraging unsafe early sexual activity, perception of daughter as too young, disapproval by partner, time constraints, rumour, social stigma related to HPV vaccination, afraid of needles, affordability and availability of HPV vaccine and center and low socio-economic status (cannot afford transport fare) have been seen to be associated with low HPV vaccine acceptability and uptake as perceived and reported by both parents, health workers, teachers and young adult (Turiho et al., 2014; Vermandere et al., 2013; Remes et al., 2012, Al-dubai et al., 2010, Lamontagne et al., 2011, Haesebaert et al., 2012), perceived benefit (Haesebaert et al., 2012, Lamontagne et al., 2011) as well as self-efficacy as expressed by a student in in a study "I should be vaccinated even if my parent(s) refused because I'm the one who'll contract the disease" (Remes et al., 2012) have been linked with high HPV vaccine acceptability. Cues to action such as

knowledge about HPV vaccine, previous history of acceptance of other vaccines, free vaccination, following advice of others as well as being aware that those who received first dose of the vaccine were not harmed have also been seen to have increased HPV vaccine acceptability and uptake (Turiho et al., 2014, Lamontagne et al., 2011, Haesebaert et al., 2012).

UNIVERSITY OF IBADAN LIBRARY

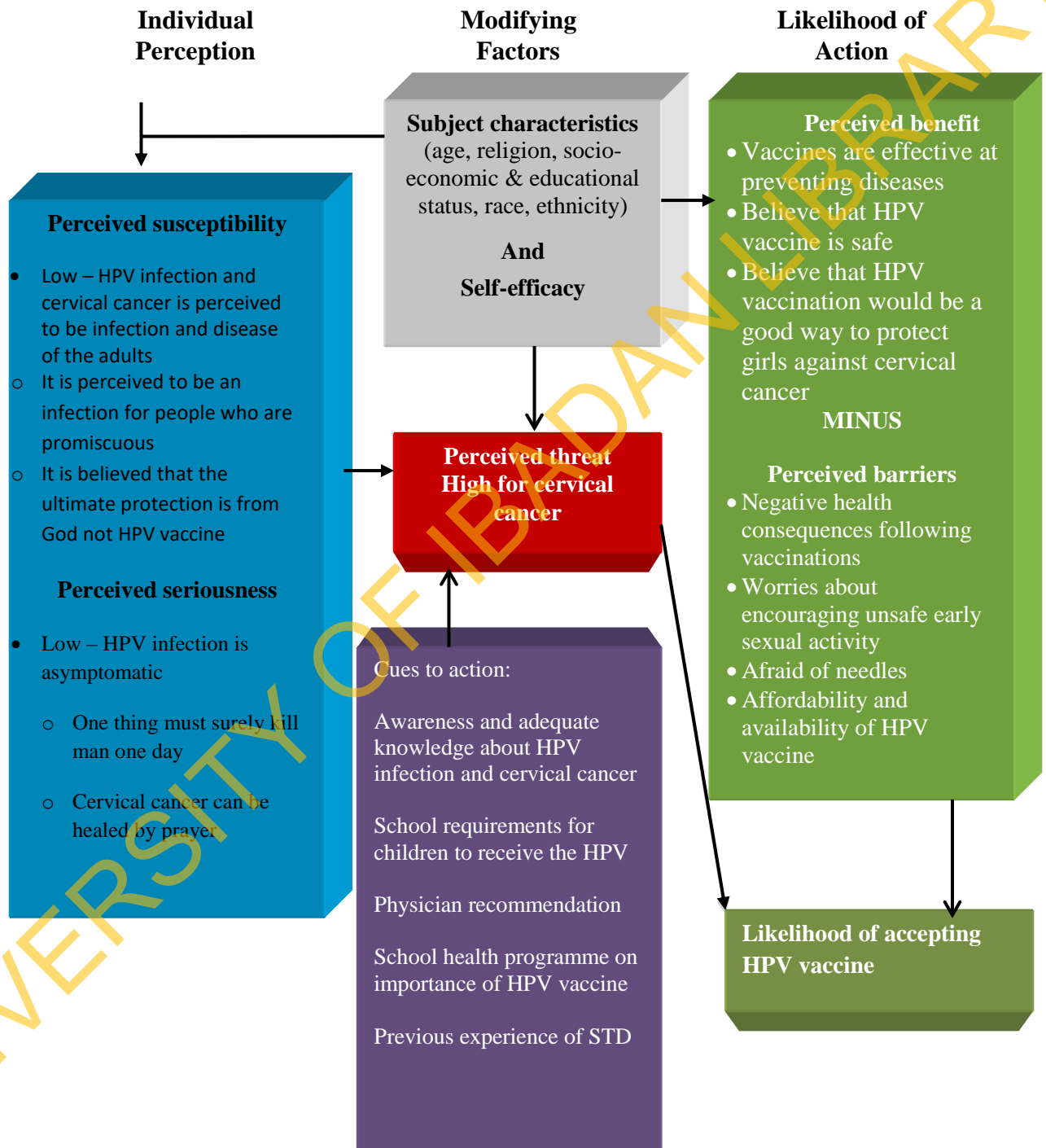


Figure 2.1: Schematic diagram of HBM, modified in relation with willingness to accept HPV vaccine. Source: Turner et al., (2004).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Study Design:

For this study, a school-based descriptive cross-sectional design was adopted.

3.2 Study Location

This study was carried out in Ibadan-North Local Government Area (LGA) of Oyo state, which is one of the oldest Local Government Areas among other 33 Local Governments areas of Oyo State, also known to be the cradle of civilization of the western Nigeria. It is located approximately on longitude 8°5' East of the Greenwich Meridian and latitude 7°23' North of equator. According to 2006 census, Ibadan North has a total population of 308,119 with population of adolescents (10-19 years) being 60,570.

Ibadan North Local Government Area consist of 12 wards, communities under Ibadan North Local Government area include: Ward one – Beere, Keninke, Agbadagbudu, Oke Are, Odo Oye; Ward two – Ode Oolo, Inaende, Oniyanrin and Oke Oloro; Ward three – Adoyo, Yemetu, Oke Aremo and Isale Alfa; Ward four – Itutaba, Idi oma, Oje igosun, Kube, Oke apon; Ward five – Bashorun, Oluwo, Ashi, Akingbola, Ikolaba, and Agodi gate area; Ward Six – Sabo Area; Ward seven – Oke Itunu, Coca-Cola and Oremeji Areas; Ward eight – Sango, Ijokodo; Ward nine – Mokola, Ago Tapa and Premier Hotel Areas; Ward ten – Bodija, Secretariat, Awolowo, Obasa, Sanudi; Ward eleven – Samonda, Polytechnic, university of Ibadan; Ward twelve – Agbowo, Bodija Market, Oju Irin, Barika, Iso Patako Lagos/Ibadan express Road. The inhabitants of Ibadan North Local Government consist of Multi-ethnic nationalities, predominantly dominated by Yorubas. The LGA houses several educational institutions such as the premier University of Ibadan, University College Hospital (College of Medicine), the Ibadan Polytechnic. There are a total number of 83 secondary schools, 36 governments and 47 private that are registered

under the local government. This educational characteristics places Ibadan-North Local Government Area at advantage over every other Local Government Areas in Ibadan Metropolis in the aspect of educational facilities. Within the Local Government are also several health care centers such as University College Hospital (UCH), Jaja health care centers, Adeoyo Hospital, and several other Primary Health Care and Health posts located in different wards.

3.3 Study Population:

The study population for this study was early adolescent girls (between the ages of 9-13 years) who at the time of the study are registered students of the selected private and secondary schools in Ibadan-North Local Government Area. This study focused on early adolescent girls because early adolescent girls (9-13 years old) are the recommended primary target population for HPV vaccination just before any initiation of sexual activity. Vaccination of secondary target populations of older adolescent females or young women (“catch-up” immunization can also be provided to females aged 13 to 26 years) is recommended only if this is feasible, affordable, cost effective, does not divert resources from vaccinating the primary target population or effective cervical cancer screening programmes, and if a significant proportion of the secondary target population is likely to be naive to vaccine related HPV types (Bloem , 2014).

3.4 Inclusion and exclusion criteria:

Only schools that are registered with the state education board as at the time the study was conducted were qualified to be selected (as authorized by the board), all boys’ schools were excluded. Girls between the ages of nine (9) and thirteen (13) years were suitable for selection for this study. All the boys and other girls who are over the age of thirteen (13) years in all selected schools were excluded from the study.

3.5 Sample Size:

The sample size for the study was calculated using the Leslie Kish formular for cross-sectional studies:

$$N = \frac{Z_{\alpha}^2 PQ}{d^2}$$

Where N = Minimum sample size,

Z_{α} = Standard normal deviate for 5% level of confidence = 1.96

P = Estimate of proportion of adolescent girls who accept HPV vaccine from a previous study = 74% (Iliyasu et. al, 2010)

Q = 1 - P

d = level of precision = 5%

$$N = \frac{(1.96)^2 \times 0.74 \times 0.26}{(0.05)^2} = \frac{0.7391238}{0.0025} = 295.6$$

This gave a minimum sample size of 296.

3.6 Sampling Techniques

A multistage sampling technique was employed. Respondents for the study were selected following five stages of sampling methods.

First Stage: Simple Stratified sampling technique was used to divide the eighty three registered public and private secondary schools in Ibadan North Local Government Area into two strata; public and private schools following the collection of list of all secondary schools (Appendix 4) from the Local Education Authority.

Second Stage: Proportionate sampling technique was used to select nine out of the thirty six registered public schools and twelve out of forty seven registered private schools. A total of twenty one out of eighty three (25%) registered secondary schools were used for this study.

Third Stage: Simple random sampling using table of random numbers was used to select the twenty one public and private schools from the list of schools obtained from the Local Education Authority.

Fourth Stage: Proportionate sampling was used to obtain the number of respondents that was recruited from each school. At most twenty eight girls and at least fifteen girls were recruited from each public and private secondary school respectively depending on the population density of the target population in each school.

Fifth Stage: Simple random sampling technique using balloting was used in high target population density schools, and convenient sampling was used in low target population density schools to select the required/calculated number of respondents from the numbers of eligible girls who were willing to participate in the study.

3.7 Instrument for Data Collection:

Data for this study was collected using self – administered semi-structured questionnaire which was developed based on findings within the literature. The instrument was pre-tested to ascertain its validity and reliability. It contained 5 sections which include Section A: Demographic information, Section B: Knowledge of early adolescent girls towards HPV and associated cervical cancer and HPV vaccine. Section C: Attitude of respondents towards acceptance of HPV vaccine, Section D: Factors that can influence the willingness of respondents towards acceptance of HPV vaccine, Section E: Other information that early adolescent girls need to inform their decision in taking up HPV vaccine. The questionnaire was prepared in both English and Yoruba. Both sets of questionnaires were back-translated, verified by an independent translator and compared against the original version in the corresponding language. Also included in the instrument was a cervical cancer factsheet prepared by CDC which has a brief description of cervical cancer and its prevention. This was used to explain to the respondent what cervical cancer, HPV and HPV vaccine is all about and was given to them after assessing their knowledge just before their attitude towards HPV was assessed.

3.8 Validity

The instrument was validated by reviewing relevant literatures as well as using the objectives formulated to guide its design and modification. The instrument was also reviewed by peers, followed by professionals and the study supervisor. The questionnaire was translated to Yoruba and back translated to English by professionals to ensure consistency.

3.9 Reliability

The instrument for the study was pre-tested among thirty (30) students; fifteen (15) students from Orogun grammar school (public) and fifteen (15) students from Yinbol grammar school (private) respectively, both schools are in Akinyele Local Government Area, Oyo state. The school's location and students had the same characteristics with the

study location and study participants. The idea for using thirty (30) students was adopted from Bruce et al., 2008 'at least a sample size of thirty is required for a normal sampling distribution'. This was aimed at evaluating the feasibility and comprehensibility of the instrument. Although a reliability coefficient of 0.76 was calculated using Cronbach's Alpha test which was used to adjudge the reliability of the instrument. 80.9% the girls who attempted questions on the 'attitude towards acceptance of HPV vaccine' selected the 'undecided' option perhaps they could not comprehend the questions which may be attributed to lack of knowledge on cervical cancer, HPV and HPV vaccine.

After the pretesting of the instruments, some of the terms used in the questionnaire were changed to suit the respondents' level of understanding and this was based on the observations of the respondents who participated in the pilot study. Examples of the changes made to the instruments are: date of birth was later included as a means of verification of age as at last birthday as some of them were not able state correctly their age as at their last birthday, 'school category' was changed to 'type of school', 'level of study' was changed to 'class' . Other changes include 'previous experience with school-based/health center vaccination' was changed to have you taken any immunization in school or health center before' ('vaccination' was changed to 'immunization') because the majority of the girls found it difficult to comprehend vaccine or vaccination but when it was described to the they said they know it to be immunization..

3.10 Data Collection Procedure

The study began following approval from the Oyo State Ministry of Health ethics review committee. The study was conducted for three weeks in the month of July 2015, at this period, schools were still in session. Five (5) research assistants (3 Females, 2 Males) were recruited and were properly and adequately trained. More emphasis was laid on the goal and objectives of the study, confidentiality, respect for human person, volunteerism of respondent and how to ensure proper filling of the questionnaire before the study was carried out.

The participants were assured of confidentiality and processes to ensure confidentiality of their information was explained to them. All the eligible students were informed about the aim and the method of the study. Copies of questionnaire were given to all students who agreed to participate in the study and they were asked to fill out the forms by themselves

while the research assistants read out the questions and clarify issues. The 5 sections of the questionnaire were printed in two sheets of paper, purposely separating knowledge section from other sections. Immediately after the respondents' answered the questions in the first sheet; Sections A and B (socio-demographic and knowledge questions), the questionnaires were collected. But before the respondents proceeded to the second section of the questionnaire, a CDC factsheet (Appendix 3) on cervical cancer was given to the respondents. This became necessary because during the pretest, it was observed that the study participants could not comprehend the questions on the attitudinal section of the questionnaire perhaps due to lack of knowledge on cervical cancer, HPV and HPV vaccine. In addition, attitude, according to Merriam-Webster Dictionary, 'is the way you think and feel about someone or something'. This means that one can only feel and think about something he/she has knowledge of. Therefore, it is not out of place that majority of the girls chose the option 'Undecided' on the attitudinal section during the pretest. Based on that, the researcher made a brief explanation of what cancer, HPV, and HPV vaccine were all about using the CDC fact sheet, and thereafter the second part of the questionnaire was given to the respondent and they were asked to proceed to sections C, D and E of the questionnaire which are attitude towards HPV vaccination, factors affecting willingness and information that will aid their decisions in HPV vaccine acceptance. The first part of the questionnaire was numbered, the respondents were asked to take note of the numbers and write it down on the second part of the questionnaire. This was used to ensure the right sheets of questionnaires were merged together after data collection.

There is no successful activity without challenges and this study is not an exception. The study was conducted during examination period, for this reason, some schools that were initially selected did not allow the study to be carried out with the view that it will disturb the students. At the same time, some respondents were in a hurry to answer the questionnaire in some schools where the authorities allowed the study. In some cases, the school authorities interrupted the interview process. The researcher selected more number of schools than expected during the random selection of schools hence schools that turned down the study were excluded from the study. The girls were continually reminded about the importance of their opinion in the study and hence were persuaded to attend to the questions with all honesty and patience.

3.11 Data Management and Analysis

Out of 500 copies of the questionnaires that were given out, 482 (96.4%) were found valid after reviewing all the instruments to check for mistakes and ensure correct completeness. Quality of the information collected from the study participants was ensured by supervising the data collection processes and also by relating clear instructions to the participants. Data processing includes collection and scoring of all the instruments. All questionnaires were assigned a serial number for identification and quick rectification in case of mix up. After reviewing the instrument, a coding guide was developed to ensure appropriate scoring is done. Thereafter, the instrument was manually coded and entered into the computer.

Participants' awareness of cancer, the cervix, cervical cancer, HPV, HPV vaccine, cervical cancer screening and sexually transmitted infection was categorized as low if the participants have heard at most two out of the seven topical areas, moderate if they have heard about three to four of the topical areas, or high if they have heard more than four of the seven topical areas. Similar sources of information were categorized together. Radio, television, internet, newspaper/magazine, news, movies/firms, novel/books and posters/fliers/campaign were groups as multimedia & campaign, mother, sister, brother, daddy, parent, and at home/relatives were grouped as close family member and other relatives, health workers/hospital and cervical cancer patients were grouped together while friends/peers, teacher/school, church, and August girls' assembly were grouped as instructor and associates.

Participants answers to the ten (10) knowledge questions was graded on a scale of 0-9 as low if they answered at most three (3) questions correctly, moderate if they answered four to six (4-6) knowledge questions correctly or high if they answered more than six (6) questions correctly. Participants' responses to the fifteen (15) attitudinal statements were graded (using forty five (45) point scale) as negative if their responses contradict the right responses to the statements, indifferent if their responses were mostly undecided or positive if their responses were in accordance with the expected (right) responses to the statements. Descriptive statistics, Chi-square and regression were used for data analysis at $p=0.05$ using SPSS version 20. All questionnaires were properly and safely stored so as to prevent unauthorized access to them.

3.12 Ethical Consideration and Approval:

Letter of introduction was collected from the Department of Health Promotion and Education, University of Ibadan and ethical approval obtained from the State Ministry of Health Ethics Committee. Also, the administrative permission of the state ministry of health, local government and school authorities was sought. The aim of the study was explained to the respondents and only girls who have willingly agreed to participate in the study will be recruited for the study. All instruments and the data collected were treated with the level of confidentiality that it requires. No participant was identified individually. Only summary data were presented in the final report. There was no direct benefit to respondents but the result obtained from this study will be useful in guiding programme implementers on the willingness and desire of the girls and thus the best approach if the vaccines will be rolled out at population level. This study does not pose any physical risk to the respondents except for the discomfort participants may feel regarding the sexual themes during the interview which was minimized by ensuring that the interview was self-administered.

3.13 Limitations of the Study

The strength of this study is embedded in its record of 96.4% response rate. The limitation for this study was that the results of this study will be peculiar to only in-school early adolescent girls of both public and private schools in urban area of Ibadan North local government of Oyo State and may not be applicable to out of school early adolescent girls in other rural areas as well as early adolescent boys.

3.14 Potential Conflict of Interest

There was no conflict of interest in this study.

CHAPTER FOUR

RESULTS

4.1 Socio-demographic characteristics of respondents

Table 4.1 shows the distribution of study respondents by socio-demographic characteristics. A total of 482 early adolescent girls participated in the study, out of which 11 (2.3%), 66 (13.7%), 156 (32.4%), 157 (32.6%) and 92 (19.1%) were 9, 10, 11, 12 and 13 years old respectively. Among the respondents, 238 (49.9%) attended private schools while 244 (50.6%) attended public schools. Ninety-five percent (95%) of the respondents were day students. Only 24 (5%) of the total respondents were boarders. Respondents comprised of 49.8% Secondary School (JSS) 1 students and 50.2% JSS 2 students; 70.7% Christians, 28.8% Muslims and 0.4% African Traditionalists. Majority of the respondents (86.3%) were of the Yoruba tribe. The proportion of respondents that were of the Hausa, Igbo and other tribes were 3.5%, 6.6% and 3.5% respectively.

Table 4.1: Socio-demographic characteristics of respondents**N = 482**

Socio-demographic Characteristics	Frequency (%)
Age (years)	
9	11 (2.3)
10	66 (13.7)
11	156 (32.4)
12	157 (32.6)
13	92 (19.1)
School Category	
Private	238 (49.4)
Public	244 (50.6)
Status of Student	
Boarder	24 (5.0)
Day Student	458 (95.0)
Class	
JSS 1	240 (49.8)
JSS 2	242 (50.2)
Religion	
Christianity	341 (70.7)
Islam	139 (28.8)
African Tradition	2 (0.4)
Tribe	
Yoruba	416 (86.3)
Hausa	17 (3.5)
Igbo	32 (6.6)
Others	17 (3.5)

4.2 Socio-demographic characteristics of respondents' parents

Table 4.2 shows the distribution of study respondents based on their parents' socio-demographic characteristics. Almost all (93.4%) of the respondents have parents that are married. More than half of the respondents have parents that have attained tertiary level education (64.1% and 59.3% for fathers and mothers respectively). About a quarter of the respondents have parents that have attained secondary level education (24.3% and 26.8% for fathers and mothers respectively). Similarly, 28.2% and 58.5% of respondents have fathers and mothers respectively that are in the sales and services occupation. Those having fathers and mothers in education, law and social, community and government services occupations were 19.3% and 15.6% respectively while respondents with fathers and mothers in business, finance and administration occupations were 18.5% and 10.4% respectively.

Table 4.2: Socio-demographic characteristics of respondents' parents

Parents Socio-demographic Characteristics	Frequency (%)
Marital Status N = 480	
Single	21 (4.4)
Married	450 (93.4)
Divorced	4 (0.8)
Separated	5 (1.0)
Father's Education Level N = 478	
Primary	19 (3.9)
Secondary	129 (26.8)
Tertiary	286 (59.3)
Quoranic	10 (2.1)
Not Known	31 (6.4)
Mother's Education Level N = 475	
Primary	13 (2.7)
Secondary	117 (24.3)
Tertiary	309 (64.1)
Quoranic	9 (1.9)
Not Known	3 (6.2)
Father's Occupation N = 472	
Health	22 (4.5)
Business, Finance and Administration	89 (18.5)
Natural and Applied Sciences	45 (9.3)
Sales and Services	136 (28.2)
Trade, Transport and Equipment Operators	77 (15.9)
Natural Resources and Agriculture	2 (0.4)
Education, Law and Social, Community and Government Services	93 (19.3)
Mother's Occupation N = 471	
Health	48 (9.9)
Business, Finance and Administration	50 (10.4)
Natural and Applied Sciences	2 (0.4)
Sales and Services	282 (58.5)
Art, Culture, Recreation and Sport	3 (0.6)
Education, Law and Social, Community and Government Services	75 (15.6)
Others	11 (2.3)

4.3 Family history of cervical cancer as well as orthodox vaccination history of respondents

Table 4.3 shows the distribution of respondents that have family history of cervical cancer as well as those that have experienced any form of orthodox vaccination. Only 10 (2.1%) of the respondents had family history of cervical cancer. A large proportion of respondents (94.4%) reported to have received at least one form of orthodox vaccination. Majority of such vaccination were against meningococcus and poliovirus reported by 91.9% and 47.1% of the respondents respectively.

Table 4.3: Vaccination history of respondents**N = 455**

Past Vaccination	Number of Respondents (%)
Yellow Fever Vaccine	3 (0.6)
Meningitis A Vaccine	443 (19.9)
Hepatitis B Vaccine	7 (1.5)
Vitamin A Immunization	5 (1.0)
Measles Immunization	7 (1.5)
Oral Polio Vaccine	227 (47.1)
Cholera Vaccine	1 (0.2)
DPT	8 (1.7)
Tetanus Toxoid Vaccine	2 (0.4)

4.4 Respondents' awareness of HPV infection, associated diseases and prevention as well their sources of information

Table 4.4a shows respondents' awareness of cancer, the cervix, cervical cancer, HPV, HPV vaccine, cervical cancer screening and sexually transmitted infection. Large proportions of study respondents (90.2% and 84.4%) reported that they have heard about cancer and sexually transmitted infection respectively but only about one-tenth of them and below reported to have heard about the cervix, cervical cancer, HPV and HPV immunization as well as cervical cancer screening. Respondents identified twenty-one (21) sources of information on cervical cancer and HPV vaccine, including cancer, the cervix, HPV and sexually transmitted infection. Out of 11.6% and 9.1% of respondents who have heard about cervical cancer and cervical screening, less than half and about half of the respondents respectively heard about it from health workers while most respondents who have heard about cervix and HPV heard it from school/teacher. Overall, about two-third of the respondents became aware of HPV and prevent through multimedia campaigns. A quarter of the respondents reported getting their information from healthcare workers and cervical cancer patients as well as through family members and other relatives as seen in table 4.4b.

Table 4.4a: Respondents' awareness of HPV infection, associated diseases and prevention

N=482

Ever heard about	YES (%)	NO (%)	Major source of information	Frequency (%)
Cancer	435 (90.2)	47 (9.8)	Television	125 (25.9)
Cervix	21 (4.4)	461 (95.6)	Teacher/School	13 (2.7)
Cervical cancer	56 (11.6)	426 (88.4)	Health worker/Hospital	17 (3.5)
Human Papillomavirus	9 (1.9)	473 (98.1)	Teacher/School	4 (0.8)
Human Papillomavirus Immunization	18 (3.7)	464 (96.3)	Teacher/School	8 (1.7)
Cervical cancer screening	44 (9.1)	438 (90.9)	Health worker/Hospital	22 (4.6)
Sexually Transmitted Infection	407 (84.4)	75 (15.6)	Teacher/School	324 (67.2)

Table 4.4b: Level of awareness and overall major sources of information on HPV, cervical cancer and preventive measures of respondents.

N = 482

Level of Awareness	Frequency (%)
High	5 (1.0)
Moderate	91 (18.9)
Low	386 (80.1)
Overall sources of Information	
Multimedia campaign*	305 (59.7)
Close family member and other relatives**	126 (26.2)
Hospital settings/Health professional***	129 (26.7)
Instructor and associates****	401 (83.2)

*Radio, television, internet, newspaper/magazine, news, movies/firms, novel/books and posters/fliers/campaign

**mother, sister, brother, daddy, parent, and at home/relatives

***Healthcare workers and cervical cancer patients

****Teachers/school, Church, peers/friends, August girls' assembly, people and environment

4.5 Knowledge of HPV infection, associated diseases and prevention among respondents

Table 4.5a shows the distribution of respondents by response to knowledge questions. A total of ten questions about HPV infection, associated diseases and HPV prevention were asked. The following statements were made to assess the knowledge of respondents on HPV associated diseases, “Cervical cancer is a cancer seen in women”, while about 64% claimed they do not know, 32% of the respondents answered “True”; “There is connection between HPV and Cervical Cancer”, only about 15% said it is true, 79.3% reported that they “don’t know”. On assessment of knowledge on HPV infection, respondents were asked if any girl or woman who has had unprotected sex has a chance of becoming infected with Human Papillomavirus infection. 30.5% were certain she would while only about 3.1 % thinks she would not but majority of the respondent said they “don’t know”. Two-third of the respondent does not know if HPV infections lack symptoms. While 15.6% of the respondents reported that the statement on HPV prevention – “HPV immunization is given to a girl before her first sexual contact” is “True”, only 17.8% knew that HPV immunization can protect against cervical cancer. Cumulatively, about four out of every five (80%) respondent did not know the answers to the questions and among those who attempted to answer, up to one-third of them failed the questions. Respondents’ overall knowledge of HPV infection and vaccination can be rated as low; majority (79%) of the respondents had low level of knowledge on HPV infection and vaccination, while just 5.4% and 15.6% had high level of knowledge and fairly knowledgeable on HPV infection and vaccination. (See table 4.5b)

Table 4.5a: Knowledge of HPV infection and prevention among respondents

Knowledge statements	Responses		
	True (%)	False (%)	Don't know (%)
Cervical cancer is a cancer seen in women?*	152 (31.5)''	22 (4.6)	308 (63.9)
Cervical cancer could be transferred from parents to children?*	108 (22.4)	46 (9.5)''	328 (68.8)
There is connection between HPV and Cervical Cancer?*	71 (14.7)''	28 (5.8)	382 (79.3)
Any girl or woman who has had unprotected sex has a chance of becoming infected with Human Papillomavirus infection?***	147 (30.5)''	15 (3.1)	320 (66.4)
Human Papillomavirus causes genital warts?*	56 (11.6)''	30 (6.2)	396 (82.2)
Human Papillomavirus infection lack symptoms?***	64 (13.3)''	31 (6.4)	386 (80.1)
HPV immunization is given to a girl before her first sexual contact?***	75 (15.6)''	43 (8.9)	362 (75.1)
HPV immunization requires two to three injections?***	59 (12.2)''	34 (7.1)	386 (80.1)
HPV immunization can be offered to female children age 9 and above?***	98 (20.3)''	22 (4.6)	360 (74.7)
HPV immunization can protect against cervical cancer?***	86 (17.8)''	22 (4.6)	373 (77.4)

* Statements on HPV associated diseases

** Statements on HPV infection

*** Statements on HPV prevention

'' Correct response

Table 4.5b: Level of knowledge of HPV infection and vaccination among respondent

N = 482

Knowledge Level	Frequency (%)
High (7+)	26 (5.4)
Moderate (4-6)	75 (15.6)
Low (0-3)	381 (79.0)

UNIVERSITY OF IBADAN LIBRARY

4.6 Attitudinal disposition towards HPV vaccine among respondents

Table 4.6a shows the respondents response to attitude statements of HPV vaccination.. A total of fifteen (15) attitudinal statements were made and respondents were asked to agree or disagree to the statements and to say, if undecided.

Concerning susceptibility, less than half proportion of the respondents (39.2%) disagreed that young girls are not in danger of HPV infection or at risk of getting cervical cancer (39.2%). Less than a fifth (18.7%) agreed that any girl without a family history of genital warts or cervical cancer doesn't need HPV vaccine. The girls seemed to perceive HPV infection as a serious infection with more than half disagreeing with statements indicating HPV infection is no serious or dangerous. Similarly over half of the respondents disagreed with statements about immunization not preventing diseases (68.9%), being beneficial to older girls alone (61.8%), and that HPV immunization cannot prevent Cervical cancer (61.4%).

About three quarters (73.2%) agreed that many young girls would refuse HPV immunization because of fear of injections. About 2 in five each disagreed with statements about HPV immunization not being readily available (44.2%), encouraging earlier sexual initiation (41.9%) and being too costly for parents to afford (42.5%). Majority (82.2%) agreed that many young girls do not have enough information about HPV immunization while 61.4% agreed that most girls would get HPV immunization even if their parents refused.

Table 4.6b shows the overall attitudinal disposition of the respondents towards HPV vaccination. On a 45 point scale, none of the participant had negative attitude. Some respondents (14.1%) were indifferent but a large proportion of the respondents (85.9%) showed positive attitude towards HPV vaccination.

Table 4.6a: Attitude towards acceptance of HPV vaccination among respondents

Statements	Responses		
	Agree (%)	Disagree (%)	Undecided (%)
Young girls between the ages of 9-13 years are not in danger of catching HPV infection?	252(52.3)	189 (39.2)	41 (8.5)
Young girls between the ages of 9-13 years are not at risk of getting cervical cancer?	260(53.9)	189 (39.2)	33 (6.8)
Any young girl who does not have family history of genital wart or cervical cancer does not need HPV vaccine?	90(18.7)	326 (67.6)	65 (13.5)
HPV is not a serious Sexual Transmitted Infection like HIV and gonorrhea?	117(24.3)	299 (62.0)	65 (13.5)
Since HPV infection does not present any symptoms, it is not dangerous?	74(15.4)	359 (74.5)	43 (8.9)
Cervical cancer is painful, deadly and associated with future childlessness?	381(79.0)	68 (14.1)	31 (6.4)
Immunization generally does not prevent diseases?	87(18.0)	332 (68.9)	57 (11.8)
HPV immunization is only beneficial to the older girls?	133(27.6)	298 (61.8)	44 (9.1)
HPV immunization cannot prevent cervical cancer?	116 (24.1)	296 (61.4)	70 (14.5)
HPV immunization is not readily available for people who want to be vaccinated?	160 (33.2)	213 (44.2)	106 (22.0)
HPV immunization might encourage earlier sexual initiation among girls between 9 to 13 years if given to them at that age?	211 (43.8)	202 (41.9)	67 (13.9)
The HPV immunization may be too costly for parents to afford?	3178 (6.9)	205 (42.5)	96 (19.9)
Many young girls are likely to refuse HPV immunization because they are afraid of injections and injection complications?	353 (73.2)	79 (16.4)	50 (10.4)
Majority of young girls do not have enough information about HPV immunization?	396 (82.2)	48 (10.0)	36 (7.5)
Most girls who are between 9-13 years would get HPV immunization even if their parents refused because they are the ones who will become infected with the disease?	296 (61.4)	111 (23.0)	73 (15.1)

Table 4.6b Attitudinal Disposition towards HPV vaccination among respondents

N = 482

Attitude	Frequency (%)
Positive	414 (85.9)
Indifferent	68 (14.1)
Negative	0 (0)

UNIVERSITY OF IBADAN LIBRARY

4.7 Willingness to accept HPV vaccine and factors that influence willingness among respondents

Figure 4.2 shows the proportions of respondents that are willing to accept HPV vaccine and factors that may influence their willingness. Majority of the respondents (84.4%) indicated their willingness to accept HPV vaccine. Respondents were asked to affirm what their honest reaction would be as presented in eleven (11) statements and to state what else could motivate or bar them from accepting HPV vaccine as presented in Table 4.7. Concerning the motivating factors, about half (49.8%) would take the HPV immunization if their friends took it, 79% because immunize children grow up healthy, and 64.3% would take the vaccine based in experience of suffering and death from cervical cancer. For other motivating factors, about three quarters each stated they would take the vaccine because they know the threat of not taking it (73.9%), and if the government will make the HPV vaccine free (77%).

The potential barriers reported by the respondents included fear of injections (40.2%), inadequate information about HPV immunization (62.2%), the perception that HPV vaccine is only for older girls (16.4%), not believing in drugs or immunization (16.8%), being already sexually active (8.7%) and high cost of HPV immunization.

The deterrents and motivating factors towards respondents' willingness to accept HPV vaccine as stated by the respondents was grouped into common headings (see figure 4.3). Self-efficacy and response effectiveness followed by cues to action were reported by 73.7% and 49.8% of respondents respectively as leading factors that may influence their willingness to accept HPV vaccine as presented in table.

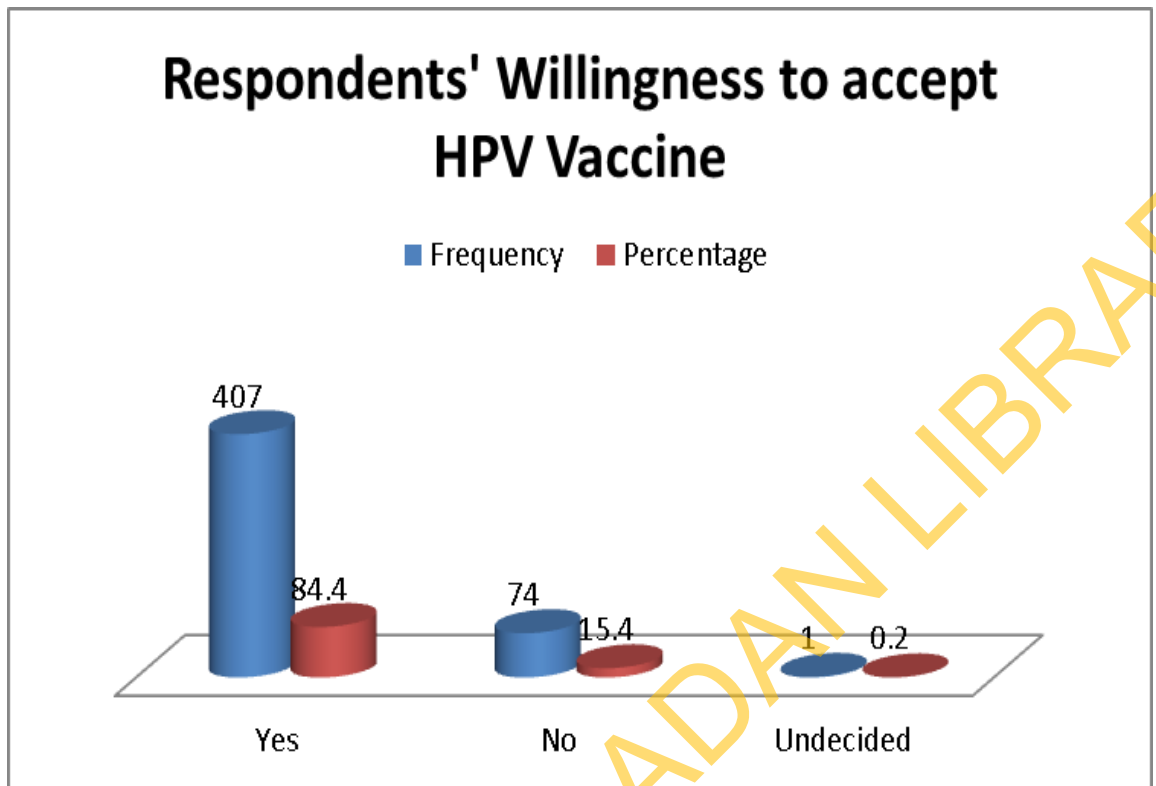


Figure 4.1: Willingness to accept HPV vaccine among respondents

N=482

Table 4.7: Perceived factors influencing willingness to accept HPV vaccination among respondents

Motivating factors	Response		
	Yes (%)	No (%)	Don't know (%)
I would take HPV immunization			
If I see my friends taking it in school.	240 (49.8)	200 (41.5)	42 (8.7)
Because I have seen that immunization promotes healthy growth in children	381 (79.0)	75 (15.6)	24 (5.0)
Having seen how a woman who had cervical cancer suffered and died in a movie or my neighborhood.	310 (64.3)	108 (22.4)	63 (13.1)
Because I now know the threat of not taking it.	356 (73.9)	79 (16.4)	45 (9.3)
If the government will offer a free vaccine for young girls aged 9 to 13 years.	371 (77.0)	82 (17.0)	27 (5.6)
Deterring Factors			
I may not take HPV immunization because			
I am afraid of taking injections.	194 (40.2)	270 (56.0)	11 (2.3)
I need more information about the HPV immunization to decide.	300 (62.2)	146 (30.3)	32 (6.6)
I am still a small girl; it is only older girls/women that need the HPV immunization.	79 (16.4)	358 (74.3)	40 (8.3)
My family neither believes in drugs nor HPV immunization.	81 (16.8)	334 (69.8)	61 (12.7)
I have had sex before so, I don't need the HPV immunization anymore.	42 (8.7)	395 (82.0)	43 (8.9)
The cost of taking the HPV immunization may be very high and my parents cannot pay for it.	12 (2.5)	357 (74.1)	113 (23.4)

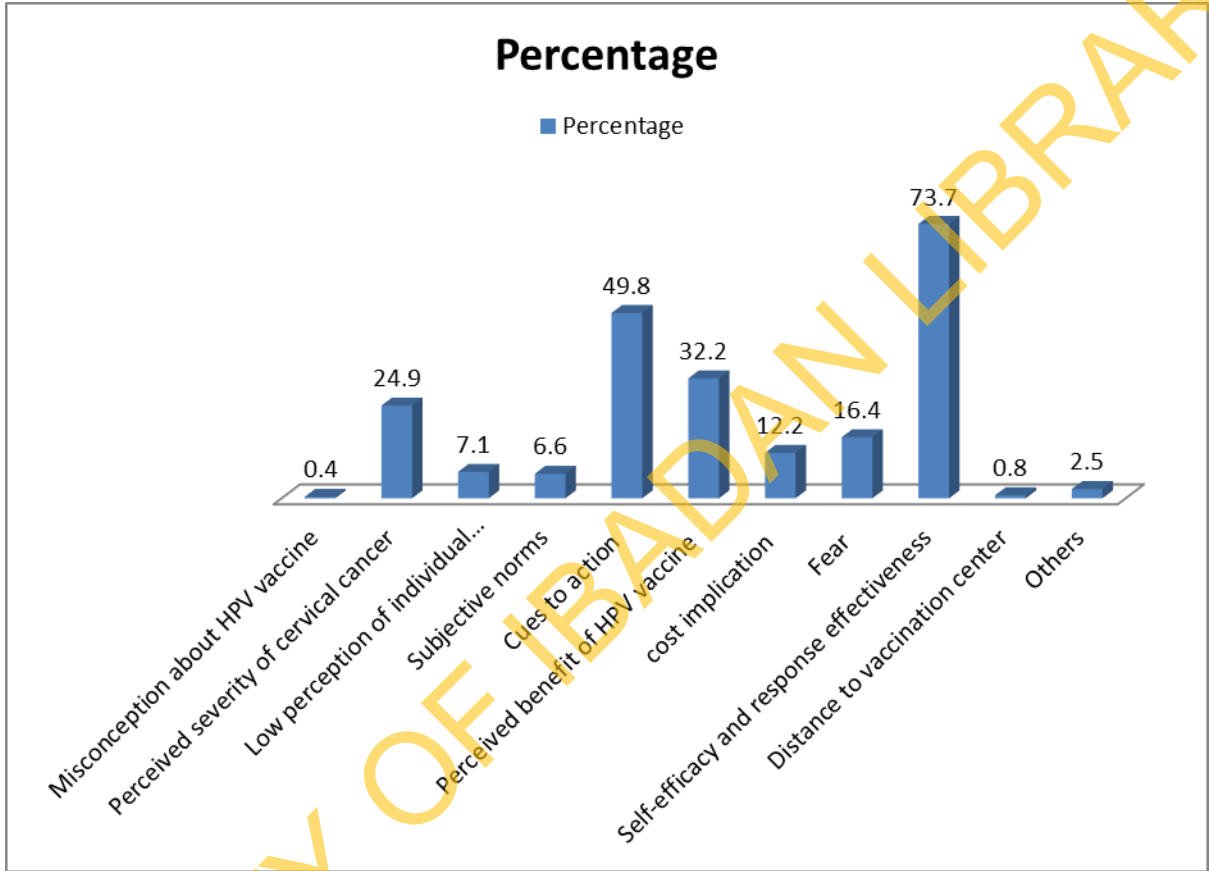


Figure 4.2: Most Influencing Factors among Respondents

4.8 Differences in willingness to accept HPV vaccine between respondents of Socio-demographic groups and knowledge level

Differences in willingness to accept HPV vaccine between respondents of socio-demographic groups and knowledge level is presented in Table 4.8. Significant ($p < 0.05$) differences were observed between the proportions of study respondents from private and public schools as well as those in JSS1 and JSS2 that were willing to accept HPV vaccine. More girls from private school and JSS2 class were willing to accept HPV vaccine relative to girls from public schools and JSS1 respectively.

Table 4.8: Differences in willingness to accept HPV vaccine between respondents' socio-demographic groups and knowledge level

Socio-demographic Characteristics / Knowledge level	Willingness to accept HPV vaccine		Chi Square	p-value
	Yes	No		
Age (years)				
9	8	3		
10	56	10		
11	136	20	8.356	0.079
12	137	19		
13	70	22		
School Category				
Private	216	22	14.28	0.000*
Public	191	53		
Status of Student				
Boarder	21	2	0.830	0.362
Day Student	386	72		
Class				
JSS 1	194	46	5.263	0.022*
JSS 2	213	28		
Religion				
Christianity	295	45		
Islam	110	29	4.775	0.092
African Tradition	2	0		
Tribe				
Yoruba	354	61		
Hausa	13	4	4.468	0.215
Igbo	14	8		
Others	16	1		
Knowledge level				
High	20	6		
Moderate	59	16	4.065	0.131
Low	328	52		

*Significance level is at p=0.05

4.9 Test of hypothesis

Table 4.9 shows the logistic regression analysis of the relationship between respondents' attitude towards HPV, cervical cancer and HPV vaccine and their willingness to accept HPV vaccines. There is no significant ($P>0.05$) association between attitude and willingness to accept HPV vaccine. However, the odds ratio (OR) of 1.427 means the likelihood of early adolescent girls to be willing to accept HPV vaccine increases by 43% if they have positive attitude towards HPV vaccination. This is confirmed when looking at the 95% confidence interval which spans unity, implying that attitude can be associated with both a decrease and an increase in willingness to accept HPV vaccine relative to being indifferent, with positive attitude being associated with increased willingness.

Table 4.9: Relationship between respondents' attitude towards HPV, cervical cancer and HPV vaccine and their willingness to accept HPV vaccine

	Number of Respondents	Number (%) willing to accept HPV vaccine	OR (95% CI)	<i>p</i>-value
Attitude	482	407 (84.4)	1.427 (0.652-3.122)	0.374

UNIVERSITY OF IBADAN LIBRARY

4.10 Informational needs with regards to HPV Infection, Cervical Cancer and HPV Immunization among respondents

Table 4.10 shows respondents' informational needs with regards to HPV infection, cervical cancer and HPV immunization. Respondents were asked to list what they wish to know about cervical cancer, HPV and HPV immunization to enable them make informed decision about taking the HPV vaccine or not and their responses fell into one of five themes as presented in the table. Respondents (7.5%) reported their need for all information concerning HPV and associated diseases as well as prevention and treatment. Other specialized information needs on life building skills and sexually transmitted diseases were also reported by 1.5% and 0.8% of respondents.

Table 4.10: Respondents informational needs about HPV, cervical cancer and HPV immunization **N = 87**

Type of Information Needed	Frequency (%)
General information on HPV, cancer, cervical cancer and HPV immunization	36 (7.5)
HPV vaccine and immunization	14 (2.9)
Screening and treatment of cervical cancer	26 (5.4)
Life building Skill	7 (1.5)
Sexually Transmitted Disease	4 (0.8)

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATION

Vaccination against Human Papillomavirus infection has since been recognized as a key approach to containing the burden of cervical cancer. The success of the approach is determined by the level of its adoption which in turn is influenced by the people's level of awareness, knowledge and attitude towards the human papillomavirus (HPV) and related diseases as well as the HPV vaccine. HPV vaccination is recommended for adolescents and young adults but highly advocated for preteen children who were researched upon in this study. The ages of the respondents of this study ranged from 9 to 13 years (Table 4.1) with a median age of 12 years. The key findings of this study include; low level of awareness, low level of knowledge, positive attitudinal disposition towards HPV vaccination, Self-efficacy and response effectiveness, cues to action as the leading factors that may influence willingness to accept HPV vaccine.

5.1 Knowledge/Awareness of HPV, HPV associated diseases and prevention

In this study, a large proportion of early adolescent girls (80.1%) do not have much awareness about HPV infection and vaccination (Table 4.4b). This may be attributed to the level of exposure of the respondents to sexuality education due to their age. The respondents are minor who are considered vulnerable hence the caution of exposing them to sex education at the tender age. The finding is consistent with (Perlman et al., 2014) who also reported a low level of awareness among adolescents, parents and health professionals. However, this finding is inconsistent with results from studies by Ayissi et al. (2012) and Chio et al. (2013)

that show moderate to high levels of awareness among female adolescents. The disparity between the findings is thought to be the outcome of the wider age range of the respondents of those studies beyond the 13 years upper age limit of the respondents of this study and perhaps a reflection of differences in socialization of preteens and teenagers or young adults. Although, this study recorded an increased level of awareness on STI and cancer, the awareness level was low on HPV, cervical cancer, HPV vaccine and cervical cancer screening. This increased awareness of STI may be associated with the awareness campaigns on HIV/AIDS as STI which have abridged the recognition of every other STI; HPV inclusive as serious reproductive health issue, such observation have also been seen in Samkange-zeeb, (2013). More so, the introduction and implementation of Family Life and HIV Education (FLHE) programme in the secondary school curriculum in Nigeria, may perhaps have contributed to it. This finding is consistent with the previous work in Gwagwalada by Nnodu et al., 2010, who reported high awareness level on STI.

Respondents of this study got their awareness of HPV, cervical cancer and HPV vaccine through various sources. Instructors and associates were the major sources of information for 83.2% of early adolescent girls followed by multimedia (audio, video and text) campaigns as reported by 59.7% of the respondents (Table 4.4b). This may perhaps be linked with the fact that the population in this study gets more of their information in school and among their peers, and for some inquisitive ones, with the availability of smart phones could browse about some health issues or get to hear about it during a commemoration of cancer day on radio and television stations. The eminent roles of the media and friends in the creation of awareness about HPV infection, and vaccination among adolescents have also been revealed in a study by Ramavath and Olyai (2013). However, close family members and relatives were the least (26.2%) reported source of information among the young girls. This may probably be due to the failure of the parents to engage their children in sexuality education because of social culture or maybe due to the inability of mothers to spend quality time with their adolescent

female children. The finding is supported by Lee, Ho, Cheung, & Keung, 2014. Generally, these findings reflect the social changes in adolescences; the characteristic growing independence of adolescents from their families, schooling and clustering of peers under the guardianship of their teachers or selected adults, hospital setting/health professionals as well as the socializing role of the media (e.g. television, internet, movies, music etc.) in child development.

It is corollary to expect a low level of knowledge of HPV, cervical cancer and HPV vaccine following an observed low level of awareness among the respondents of this study. As expected, the study revealed that the knowledge level of the majority (79.0%) of early adolescent girls was below average (Table 4.5b). The concordance between levels of awareness and knowledge has also been reported by Ayissi et al. (2012).

5.2 Attitude towards Acceptance of HPV Vaccination

Although majority of the young girls (80.1% and 79.0%) in this study had poor levels of awareness and knowledge of HPV, cervical cancer and HPV vaccine respectively (Tables 4.4B and 4.5B), a large proportion of them (85.9%) had positive attitudes towards acceptance of HPV vaccination (Table 4.6b). The finding is inconsistent with everyday observations as awareness and knowledge are cognitive aspect of attitude hence poor knowledge and awareness should naturally influence one's attitude towards the negative. However, the respondents' positive attitude could be associated with the brief description on cervix and its function, HPV and its related diseases using CDC factsheet (Appendix 3) which was aimed at bringing all the respondents at same level of understanding of the subject matter before expressing their attitude towards it. Aside the brief description, the respondents' positive attitude could also be thought to be influenced by externalities – overspill effects from their positive attitude towards health and against diseases. For instance, while large proportions (90.2% and 84.4%) of the respondents had heard about cancer and sexually transmitted diseases respectively, majority of them (88.4%, 98.1% and 96.3%) were not aware of cervical cancer, HPV and HPV immunization respectively before the study was carried out, hence,

their positive attitude against cancer and sexually transmitted diseases in general may have got a spillover effect on HPV infection and cervical cancer. Similarly a high percentage (94.4%) of the girls had experienced at least one form of vaccination in the past (Table 4.3) and such experience could engender a positive attitude towards vaccination in general.

In this study, 52.3% of the respondents perceived themselves not to be at risk of HPV infection which corroborate with the previous study which reported that many adolescents were not aware they are at risk of acquiring HPV (Blumenthal et al., 2012). Also in this study, 79.0% of the respondents perceived cervical cancer to be painful, deadly and associated with future childlessness. This probably might be associated with the fear of cancer in general as reported by (Lee et al., 2014). While majority 43.8% of the girls agreed that HPV vaccine might encourage early sexual initiation, only 14.0% reported that they might take more sexual risk because they are vaccinated (Blumenthal et al., 2012).

5.3 Perceived Factors Affecting Willingness to Accept HPV Vaccination

Four in every five early adolescent girl were willing to be vaccinated against HPV (Figure 4.1). The girls' positive attitudinal disposition was observed to be a contributing factor towards their willingness to be vaccinated, increasing their willingness to accept HPV vaccine by 43%, although not to a statistically significant ($P > 0.05$) level (Table 4.9). When asked about factors that could motivate or bar them from accepting the HPV vaccine, 73.7% of the girls replied that the confident that they can take the HPV vaccine (self-efficacy) and that the HPV vaccination would be effective against HPV infection (response effectiveness) would influence their willingness to accept HPV vaccine and 49.8% of the study respondents relied that they would take the HPV vaccine if they see their friends being vaccinated at school (cues to action) among other (Table 4.7). Research evidence supports self-efficacy (Blumenthal et al., 2012), cues to action (Scaparrotta & Chiarelli, 2015) and perceived effectiveness of HPV vaccine as predictors for HPV Vaccine initiation among adolescent girls (Brewer et al., 2011).

However, significant differences ($p < 0.05$) were observed between proportions of study respondents from public and private schools as well as those in JSS1 and JSS2 that were willing to accept HPV vaccine (Table 4.8). More girls from private schools and JSS2 class were willing to be vaccinated against HPV relative to their public schools counterpart or junior colleagues (JSS1 students) respectively. The former suggests that the type of schools might play a role in influencing the child's willingness to accept HPV vaccine while the latter is suggestive of a potential connection between educational level and willingness to be vaccinated. But the importance of educating young people on HPV infection, cervical cancer and HPV immunization cannot be overemphasized. Information on these three topical areas ranked the top three information needs (Table 4.10) by the study respondents.

5.4 Implications of the findings for Health Promotion and Education.

The major focus of health promotion and education is human behavior – “what people do or fail to do that affect their life”. Health education studies why people behave the way they do and how it affect their health. The sum total of educational efforts aimed at helping, motivating and encouraging people to want to be healthy, do what they can to maintain health and as well as seek help as at where and when needed. These activities help an individual or group of individuals to promote and facilitate self-health care, prevent ill-health, maintain health and use intelligently and maximally all available services which can enable them have control over their health and its determinants. It basically entails the combination of educational and environmental supports for actions and conditions of living conducive to health. To achieve the forgoing, there is need for application of health education strategies and methods which emphasizes linking the determinants of behavior with multiple programme interventions.

This study found that the study respondents have low level of knowledge on HPV, cervical cancer and HPV vaccine and low awareness level about the cervix, cervical cancer, HPV and HPV immunization as well as cervical cancer screening. It was also observed that the brief description of cervix and its function as well as HPV and other related diseases, could have contributed to the positive attitudinal

disposition towards the HPV vaccine which also suggests the increase in willingness to accept HPV vaccine. Addressing this issue goes beyond the students themselves because it extends to all the stakeholders in the affairs of the girls which include; parents, government, the media, major players in the education sector, as well as health educators. Provision of adequate, appropriate and suitable health information, education and communication materials can be used to address the low level of knowledge and low awareness level and to get the students familiar with the risk involve in not being vaccinated at early age of life. Interestingly, the girls have indicated their informational needs about HPV, Cervical Cancer and HPV immunization. Therefore, the contents of any educational intervention should include; General information about the phenomenon, HPV vaccine and immunization, Screening and treatment of cervical cancer, life building skills and sexually transmitted diseases. To accomplish this there is also need for supportive and enabling environment. The key players should endeavor to ensure a good working environment in the form of provision of resources and facilities needed to achieve the Programme.

However, the study also revealed positive attitudinal disposition towards HPV vaccine, and the positive attitude being associated with increased willingness to accept HPV vaccine there is likelihood that any educational programme targeted at the girls would probably be successful.

5.5 Conclusion

Vaccination against HPV infection – the aetiology of cervical cancer is recommended to protect women from cervical cancer related deaths. HPV vaccine is best given to adolescents between the ages of 9 and 13 years but it has been shown that this population subgroup are poorly aware or knowledgeable about HPV infection, cervical cancer and HPV immunization hence are unlikely to be vaccinated against HPV during this period of their development. However, regardless of their low levels of knowledge and awareness, they have been found to have positive attitude towards HPV vaccine and are willing to be vaccinated. While the results of this study are only suggestive of connections between schools,

educational level, cues to action, self-efficacy/response effectiveness and willingness to accept HPV vaccine, positive attitude have been shown to increase such willingness by 43.0%. Since awareness and knowledge are cognitive aspect of attitude, it is therefore paramount to raise the level of awareness and knowledge of young people on HPV infection, cervical cancer and HPV vaccination perhaps through instructor-based and peer education models as well as through mass and social media in accordance with popular sources of information identified by the young people in this study.

5.6 Recommendations

Based on the findings of this study, the following recommendations were made;

1. It is recommended that the researcher should organize a training on HPV in the 21 schools used for the study. This will target the early adolescent girls in order to increase their knowledge about the danger of HPV infection, cervical cancer and the benefits of early HPV vaccination.
2. Though there was high level of awareness of STI in this study probably due to the Family Life and HIV Education (FLHE) programme recently incorporated into the secondary school curriculum in Nigeria, HPV should be spelt out in the curriculum and taught as a topic together with other STI (instead of only genital warts Refer to Appendix 3) which can also cause cervical cancer.
3. Similar to other school-based National Programme on Immunization (NPI) that have been carried out in the state, the Government should as a matter of urgency organize free HPV Vaccination for as many that are willing to be vaccinated to avert the future incidence of cervical cancer which had been reported to be on the increase amongst women.
4. Notwithstanding the low level of awareness of cervical cancer and HPV vaccine, the study respondents identified their major sources of information as instructor and associates (friends/peers, teacher/school, church etc) and multimedia campaign (radio, television, internet, newspaper/magazine, news, movies/firms, novel/books and posters/fliers/campaign). This implies that if the teachers have a good knowledge of cervical cancer and HPV infection, they can pass the knowledge

across to their students which in-turn can easily influence their peers/friends. For multimedia, it is usually said that young people learn faster when examples of real life situations are provided. The uses of films/videos of people suffering from cervical cancer are therefore recommended as instructional materials in secondary schools as part of school health instruction in Nigeria.

5.7 Suggestion for further research

Based on the findings of this study,

1. The researcher therefore suggested that, similar study should be conducted among the same age group in rural areas as well as in other geo-political zones in the country to determine their willingness to accept the vaccine and also their informational needs.
2. Though the standard age considered for this research is 9-13 years, there have been cases where individuals aged less than 9 have had sexual debut. Therefore, more research should be done to explore sexual debut based on location so as to gather relevant data. This data can therefore be used to influence policy on age for HPV vaccination.

REFERENCES

- Al-dubai, S. A. R., Alshagga, M. A., Ahmed, R., Al-jashamy, K., Baobaid, M. F., Tuang, C. P., ... Kadir, A. (2010). Knowledge , Attitudes and Barriers for Human Papilloma Virus (HPV) Vaccines among Malaysian Women. *Asian Pacific Journal of Cancer Prevention*, 11, 887–892.
- Al-naggar, R. A., Bobryshev, Y. V, Al-jashamy, K., & Al-musli, M. (2012). Practice of HPV Vaccine and Associated Factors among School Girls in Melaka , Malaysia, 13, 3835–3840.
- Aminu, M., Gwafan, J., Inabo, H., Oguntayo, A., & Koledade, A. (2014). Seroprevalence of human papillomavirus immunoglobulin G antibodies among women presenting at the reproductive health clinic of a university teaching hospital in Nigeria. *International Journal of Women's Health, Dove Press Ournal*, 6, 479–487. Retrieved from <http://dx.doi.org/10.2147/IJWH.S56388>
- Anoud, A., Alaa, A., Al-Busairi, H., & Medhat, K. E.-S. (2012). Awareness of HPV and Cervical Cancer Vaccine among PHC Physicians in Kuwait. *Greener Journal of Medical Science*, 2012. Retrieved from [http://www.gjournals.org/GJMS/GJMSpdf/2013/May/031813528 Anoud et al.pdf](http://www.gjournals.org/GJMS/GJMSpdf/2013/May/031813528%20Anoud%20et%20al.pdf)
- Asad Moten, Daniel Schafer, Paul Farmer, Jim Kim, M. F. (2014). Redefining global health priorities: Improving cancer care in developing settings. *Journal of Global Health*, 4(1), 36 – 40.
- Awolude, O. A., Morhason-Bello, I. O., Denny, L. . ., & Adewole, I. F. (2013). Human Papillomavirus Infection and Related Cancers in Sub-Saharan Africa : Burden and Tools for Prevention. *Vaccine*, 31(5). <http://doi.org/10.1016/j.vaccine.2012.06.065>
- Ayissi, C. A., Wamai, R. G., Oduwo, G. O., Perlman, S., Welty, E., Welty, T., Manga, S. and Ogembo, J. G. (2012). Awareness, Acceptability and Uptake of Human Papilloma Virus Vaccine Among Cameroonian School-Attending Female Adolescents. *J. Community Health*. 37:1127–1135.
- Bloem, P., Duclos, P., Goodman, T., Gottlieb, S., Henao-Restrepo, A. M., Lapujade, O., ... Wang, S. (2014). *Evidence based recommendations on Human Papilloma Virus (HPV) Vaccines Schedules. Background paper for SAGE discussions*. Geneva.
- Blumenthal, J., Frey, M. K., Michael J.Worley, J., Tchabo, N. E., Soren, K., & Slomovitz, and B. M. (2012). Adolescent Understanding and Acceptance of the HPV Vaccination in an Underserved Population in New York City,. *Journal of Oncology*,

2012, 8. <http://doi.org/0.1155/2012/904034>

- Breast without Spot (BWS). (2014). School-based Human papillomavirus (HPV) vaccination Initiative. Retrieved January 1, 2014, from http://breastwithoutspotng.org/?page_id=331
- Brewer, N. T., & Fazekas, K. I. (2007). Predictors of HPV vaccine acceptability: A theory-informed, systematic review. *Preventive Medicine, 45*(2-3), 107–114. <http://doi.org/10.1016/j.ypmed.2007.05.013>
- Brewer, N. T., Gottlieb, S. L., Reiter, P. L., McRee, A., Liddon, N., Markowitz, L. and Smith, J. S. (2011). Longitudinal Predictors of HPV Vaccine Initiation among Adolescent Girls in a High-Risk Geographic Area. *Sex Transm. Dis. 38*(3): 197–204.
- Bruce, N., Pope, D., & Debbi Stanistreet. (2008). Probability distributions, hypothesis testing and Bayesian methods. In *Quantitative Methods for Health Research: A Practical Interactive Guide to Epidemiology and Statistics* (2nd ed., pp. 471 – 525). John Wiley & Sons, Ltd. <http://doi.org/10.1007/978-1-84996-187-5>
- Bruni, L., Diaz, M., Castellsagué, X., Ferrer, E., Bosch, F. X., & de Sanjosé, S. (2010). Cervical human papillomavirus prevalence in 5 continents: meta-analysis of 1 million women with normal cytological findings. *The Journal of Infectious Diseases, 202*(12), 1789–1799. <http://doi.org/10.1086/657321>
- Centers for Disease Control and prevention. (2012). Inside Knowledge Uterine Cancer Fact Sheet.
- Centers for Disease Control and Prevention. (2015). Making sense of your Pap and HPV test results. Retrieved October 23, 2015, from <http://www.cdc.gov/std/hpv/pap/default.htm>
- Centre for Disease Control and Prevention. (2012). HPV Vaccine Cervarix What You Need to Know.
- Centre for Disease Control and Prevention(CDC). (2010). *FDA Licensure of Bivalent Human Papillomavirus Vaccine (HPV2, Cervarix) for Use in Females and Updated HPV Vaccination Recommendations from the Advisory Committee on Immunization Practices (ACIP)* (Vol. 59).
- Choi, H. C. W., Leung, G. M., Woo, P. P. S., Jit, M., & Wu, J. T. (2014). Acceptability and uptake of female adolescent HPV vaccination in Hong Kong : A survey of mothers and adolescents. *Vaccine, 32*(1), 78–84. <http://doi.org/10.1016/j.vaccine.2013.10.068>

- Cohen, S. (2007). A Long and Winding Road: Getting the HPV Vaccine to Women in the Developing World. *Guttmacher Policy Review*, 10(3), 15–19. Retrieved from <http://www.guttmacher.org/pubs/gpr/10/3/gpr100315.html>
- Cutts, F. T., Franceschi, S., Goldie, S., Castellsague, X., Sanjose, S. De, Garnett, G., ... Markowitz, L. (2007). Bulletin of the World Health Organization Human papillomavirus and HPV vaccines : a review, 1–2.
- Dahlström, L. A., Tran, T. N., Lundholm, C., Cecilia Young, K. S., & Sparén, P. (2010). Attitudes to HPV vaccination among parents of children aged 12-15 years—a population-based survey in Sweden. *International Journal of Cancer*, 507(126), 500–507. <http://doi.org/10.1002/ijc.24712>
- EuroMed Info. (2015). PATIENT TEACHING INTO PRACTICE- short navigation: The Health Belief Model. Retrieved June 13, 2015, from <http://www.euromedinfo.eu/the-health-belief-model.html/>
- Ezenwa, B. N., Balogun, M. R., & Okafor, I. P. (2013). Mothers ' human papilloma virus knowledge and willingness to vaccinate their adolescent daughters in Lagos , Nigeria. *International Journal of Women's Health*, 5, 371–377.
- Giuliano, A. R., Palefsky, J. M., Goldstone, S., Edson D. Moreira, J., Penny, M. E., Aranda, C., ... Guris, D. (2011). Efficacy of Quadrivalent HPV Vaccine against HPV Infection and Disease in Males. Retrieved December 11, 2014, from <http://www.fda.gov/downloads/biologicsbloodvaccines/vaccines/approvedproducts/ucm111263.pdf>
- Haesebaert, J., Lutringer-magnin, D., Kalecinski, J., Barone, G., Jacquard, A., Régnier, V., ... Lasset, C. (2012). French women ' s knowledge of and attitudes towards cervical cancer prevention and the acceptability of HPV vaccination among those with 14 – 18 year old daughters : a quantitative- qualitative study. *BMC Public Health*, 1–10. <http://doi.org/10.1186/1471-2458-12-1034>
- ICO Information Centre on HPV and Cancer. (2014). Nigeria Human Papillomavirus and Related Cancers, Fact Sheet 2014. Retrieved May 6, 2015, from www.hpvcentre.net/statistics/reports/NGA_FS.pdf
- Iliyasu, Z., Abubakar, I. S., Aliyu, M. H., & Galadanci, H. S. (2010). Cervical cancer risk perception and predictors of human papilloma virus vaccine acceptance among female university students in northern Nigeria. *Journal of Obstetrics and Gynaecology*. Retrieved from <http://taylorandfrancis.metapress.com/link.asp?id=100389>

- Janz, K., & Becker, M. H. (1984). The Health Belief Model : A Decade Later. *Health Education Quarterly*, 1–47.
- Kaarthigeyan, K. (2012). Cervical cancer in India and HPV vaccination. *Indian Journal of Medical and Paediatric Oncology*, 33(1), 7–12.
<http://doi.org/10.4103/09715851.96961>
- Katahoire, A. R., Wani, J. A., Murokora, D., Mugisha, E., & LaMontague, D. S. (2013). Acceptability of HPV vaccine among young adolescent girls in Uganda: Young people’s perspectives count. *International Journal of Child and Adolescent Health*, 6(2), 211–219. Retrieved from
http://search.proquest.com/docview/1440032727?accountid=14468&nhttp://wx7cf7zp2h.search.serialssolutions.com/?ctx_ver=Z39.88-2004&ctx_enc=info:ofi/enc:UTF-8&rft_id=info:sid/ProQ:psycinfo&rft_val_fmt=info:ofi/fmt:kev:mtx:journal&rft.genre=article&rft.jtitl
- Kilic, A., Seven, M., Guvenc, G., Akyuz, A., & Ciftci, S. (2012). Acceptance of Human Papillomavirus Vaccine by Adolescent Girls and Their Parents in Turkey, 13, 4267–4272.
- Lamontagne, D. S., Barge, S., Le, T., Mugisha, E., Penny, M. E., Gandhi, S., ... Tang, Y. (2011). Human papillomavirus vaccine delivery strategies that achieved high coverage in low- and middle-income countries. *Bulletin of the World Health Organization*, (May), 821–830. <http://doi.org/10.2471/BLT.11.089862>
- Lee, a, Ho, M., Cheung, C., & Keung, V. (2014). Factors influencing adolescent girls’ decision in initiation for human papillomavirus vaccination: a cross-sectional study in Hong Kong. *BMC Public Health*, 14(1), 1–10. <http://doi.org/10.1186/1471-2458-14-925>
- Makwe, C. C., & Rose Ihuoma Anorlu. (2011). Knowledge of and attitude toward human papillomavirus infection and vaccines among female nurses at a tertiary hospital in Nigeria. *International Journal of Women’s Health*. Retrieved from
<http://dx.doi.org/10.2147/IJWH.S22792>
- Matsumoto, K. (2010). [Human papillomavirus]. *Nippon Rinsho. Japanese Journal of Clinical Medicine*, 68 Suppl 6, 345–349. Retrieved from
[http://www.embase.com/search/results?subaction=viewrecord&from=export&id=L360246312&nhttp://sfxhosted.exlibrisgroup.com/dal?sid=EMBASE&issn=00471852&id=doi:&atitle=\[Human+papillomavirus\].&stitle=Nippon+Rinsho&title=Nippon+rins ho.+Japanese+journal+of+c](http://www.embase.com/search/results?subaction=viewrecord&from=export&id=L360246312&nhttp://sfxhosted.exlibrisgroup.com/dal?sid=EMBASE&issn=00471852&id=doi:&atitle=[Human+papillomavirus].&stitle=Nippon+Rinsho&title=Nippon+rins ho.+Japanese+journal+of+c)
- Morales-campos, D. Y., Ph, D., Markham, C. M., Ph, D., Peskin, M. F., Ph, D., ... Ph, D.

- (2013). Hispanic Mothers ' and High School Girls ' Perceptions of Cervical Cancer , Human Papilloma Virus , and the Human Papilloma Virus Vaccine. *Journal of Adolescent Health*, 52(5), S69–S75. <http://doi.org/10.1016/j.jadohealth.2012.09.020>
- National Cancer Institute. (2015a). HPV and Cancer. Retrieved October 23, 2015, from <http://www.cancer.gov/about-cancer/causes-prevention/risk/infectious-agents/hpv-fact-sheet>
- National Cancer Institute. (2015b). Human Papillomavirus (HPV) Vaccines. Retrieved January 1, 2015, from <http://www.cancer.gov/aboutcancer/>
- Nnodu, O., Erinosh, L., Jamda, M., Olaniyi, O., Adelaiye, R., Lawson, L., ... Zamani, A. (2010). Knowledge and Attitudes towards Cervical Cancer and Human Papillomavirus : A Nigerian Pilot Study. *African Journal of Reproductive Health*, 14(1), 95–108.
- Odetola, T., & Ekpo, K. (2012). Community Medicine & Health Education Nigerian Women ' s Perceptions about Human Papilloma Virus Immunisations, 2(11). <http://doi.org/10.4172/2161-0711.1000191>
- Okolo, C., Franceschi, S., Adewole, I., Thomas, J. O., Follen, M., Snijders, P. J. F., ... Clifford, G. M. (2010). Human papillomavirus infection in women with and without cervical cancer in Ibadan , Nigeria. *Infectious Agents and Cancer*, 5(1), 24. <http://doi.org/10.1186/1750-9378-5-24>
- PATH | RHO. (2012). About cervical cancer HPV and cervical cancer The worldwide burden. Retrieved October 22, 2015, from <http://www.rho.org/about-cervical-cancer.htm>
- Perkins, R. B., Langrish, S. M., Cotton, D. J., & Carol J. Simon. (2011). Maternal Support for Human Papillomavirus Vaccination in Honduras. *JOURNAL OF WOMEN'S HEALTH*, 20(1). <http://doi.org/10.1089=jwh.2009.1919>
- Perlman, S., Wamai, R. G., Bain, P. a., Welty, T., Welty, E., Ogembo, G., & Ogembo, J. G. (2014). Knowledge and awareness of HPV vaccine and acceptability to vaccinate in sub-Saharan Africa: A systematic review. *PLoS ONE*, 9(3). <http://doi.org/10.1371/journal.pone.0090912>
- Rama, C. H., Villa, L. L., Pagliusi, S., Andreoli, M. a, Costa, M. C., Aoki, A. L., ... Eluf-Neto, J. (2010). Awareness and knowledge of HPV, cervical cancer, and vaccines in young women after first delivery in São Paulo, Brazil--a cross-sectional study. *BMC Women's Health*, 10(1), 35. <http://doi.org/10.1186/1472-6874-10-35>
- Ramavath, K. K. and Olyai, R. (2013). Knowledge and Awareness of HPV Infection and

- Vaccination Among Urban Adolescents in India: A Cross-Sectional Study. *The Journal of Obstetrics and Gynecology of India*. 63(6):399–404.
- Remes, P., Selestine, V., Changalucha, J., Ross, D. A., Wight, D., Sanjosé, S. De, ... Watson-jones, D. (2012). A qualitative study of HPV vaccine acceptability among health workers , teachers , parents , female pupils , and religious leaders in northwest Tanzania. *Vaccine*, 30(36), 5363–5367. <http://doi.org/10.1016/j.vaccine.2012.06.025>
- Samkange-zeeb, F. (2013). *Assessing knowledge and awareness of sexually transmitted infections among school-going adolescents Dissertation Submitted by*. University of Bremen.
- Scaparrotta, A., & Chiarelli, F. (2015). *Attitudes toward Hpv Vaccination : Different Points of View*.
- Sexually Transmitted Infection Education Foundation. (2013). *Sexually Transmitted Infections Summary of Guidelines*. Retrieved from www.nzshs.org
- Stokley, S., Cohn, A., Dorell, C., Hariri, S., Messonnier, N., & Pascale, M. (2011). Adolescent Vaccination-Coverage Levels in the United States : 2006 – 2009. *American Academy of Pediatrics*, 128(6), 1078–1086. <http://doi.org/10.1542/peds.2011-1048>
- Trim, K., Nagji, N., Elit, L., & Roy, K. (2012). Parental Knowledge , Attitudes , and Behaviours towards Human Papillomavirus Vaccination for Their Children : A Systematic Review from 2001 to 2011. *Obstetrics and Gynecology International*, 2012, 12. <http://doi.org/10.1155/2012/921236>
- Turiho, A. K., Okello, E. S., Muhwezi, W. W., Harvey, S., Byakika-Kibwika, P., Meya, D., & Anne R. Katahoire. (2014). Effect of School-based Human Papillomavirus (HPV) Vaccination on Adolescent Girls ' Knowledge and Acceptability of the HPV Vaccine in Ibanda District in Ugand a. *African Journal of Reproductive Health*, 18(4), 45–53.
- Turner, L. W., Hunt, S. B., DiBrezzo, R., & Jones, C. (2004). Health Belief Model. In *Design and implementation of an osteoporosis prevention program using the health belief model*. (Vol. 19, pp. 115–121). Jones and Bartlett publisher.
- University of Twente. (2012). Health Belief Model. Retrieved June 13, 2015, from http://www.utwente.nl/cw/theorieenoverzicht/Theory Clusters/Health Communication/Health_Belief_Model/
- Velicer, C. (2011). *Post-licensure safety study of quadrivalent human papillomavirus vaccine among 189,629 females. Paper presented at: Advisory Committee on*

Immunization Practices Meeting; October 25, 2011; Atlanta, GA. (Vol. 60).
Retrieved from <http://www.cdc.gov/VACCINES/recs/acip/downloads/mtg-slides-oct11/03-HPV-Velicer.pdf>.

Vermandere, H., Naanyu, V., Mabeya, H., Broeck, D. Vanden, Michielsens, K., & Degomme, O. (2013). *DETERMINANTS OF ACCEPTANCE AND SUBSEQUENT UPTAKE OF THE HPV VACCINE IN A COHORT*. Eldoretret.

World Health Organization. (2015a). Cancer. Retrieved June 5, 2015, from <http://www.who.int/mediacentre/factsheets/fs297/en/#>

World Health Organization. (2015b). Cervical Cancer -.

World Health Organization. (2015c). Human papillomavirus (HPV) and cervical cancer. Retrieved May 6, 2015, from <http://www.who.int/mediacentre/factsheets/fs380/en/>

World Health Organization. (2015d). Immunization coverage. Retrieved May 6, 2015, from <http://www.who.int/mediacentre/factsheets/fs378/en/>

World Health Organization Information Centre on HPV and Cervical Cancer. (2014). *Human Papillomavirus and Related Diseases Report In Nigeria*. Retrieved from <http://www.hpvcentre.net/statistics/reports/XFX.pdf>

APPENDICES

APPENDIX 1

QUESTIONNAIRE

Introduction

My name is MGBOH, Chinenyenwa Josephine. I am a Masters of Public Health Student from the Department of Health Promotion and Education, College of Medicine, University of Ibadan. I am carrying out a study titled: ‘**ATTITUDE AND WILLINGNESS TO ACCEPT HUMAN PAPILLOMAVIRUS VACCINE AMONG EARLY ADOLESCENT GIRLS IN IBADAN NORTH LOCAL GOVERNMENT AREA, OYO STATE**’.

It is expected that the outcome of this study may provide the basis for increase health education and information about the attitude and willingness to accept human papilloma virus vaccine among early adolescent girls in Ibadan North, and by extension Nigeria as a whole. This study will also avail the public health professionals and planners opportunity to design an intervention in this area. You are therefore invited to participate in this study by providing answers to questions below. There is no right or wrong answers so you are encouraged to contribute meaningfully. I do not require your name for the questionnaire. I shall be grateful if you are honest in answering all the questions. Information provided will be kept confidential and used for the purpose of this research only.

Note: the research is free of risk and participation is entirely voluntary.

Thank you for your cooperation.

SECTION A: SOCIO-DEMOGRAPHIC INFORMATION

INSTRUCTION: Please tick [] as appropriate in the boxes provided

1. Age in years as at your last birthday.....years
2. School category 1. Public [] 2. Private []
3. Status of the student 1. Boarder [] 2. Day Student[]
4. Class 1. JSS 1 [] 2. JSS 2 [] 3. JSS 3 []
5. Religion
 1. Christianity []
 2. Islam []
 3. African Tradition []
 4. Others (Specify).....

6. Date of birth (dd/mm/yy)
7. Tribe
 1. Yoruba [] 2. Hausa [] 3. Igbo []
 373 Others (Specify).....
8. Parental Marital Status
 1. Single [] 2. Married [] 3. Divorced [] 4. Separated []
9. Parental Educational Status - Father
 1. Primary [] 2. Secondary [] 3. Tertiary [] 4. Quaranic []
 5. Others (Specify).....
10. Parental Educational Status – Mother
 1. Primary [] 2. Secondary [] 3. Tertiary [] 4. Quaranic []
 5. Others (Specify).....
11. Father’s Occupation
12. Mother’s Occupation
13. Any family history of cervical cancer?
 1. Yes [] 2. No []
14. Have you taken any immunization in the school or health-center before?
 1. Yes [] 2. No [] 3. I don’t know []
- 14b. If yes, please list them
-
-

SECTION B: KNOWLEDGE/AWARENESS OF HUMAN PAPILLOMA VIRUS AND ASSOCIATED CERVICAL CANCER

AWARENESS QUESTIONS				
15	Ever heard about	a. YES	b. NO	c. Source (where did you hear about it/them? Write as many as possible)
i.	Cancer			
ii.	Cervix			

iii.	Cervical cancer			
iv.	Human Papillomavirus			
v.	Human Papillomavirus Immunization			
vi.	Cervical cancer screening			
vii.	Sexually Transmitted Infection			

KNOWLEDGE QUESTIONS

	STATEMENT	1. TRUE	2. FALSE	3. I DON'T KNOW
16	Cervical cancer is a cancer seen in women			
17	Cervical cancer could be transferred from parents to children			
18	There is connection between HPV and Cervical Cancer			
19	Any girl or woman who has had unprotected sex has a chance of becoming infected with Human Papillomavirus infection?			
20	Human Papillomavirus causes genital warts			
21	Human Papillomavirus can lack symptoms?			
22	HPV immunization is given to a girl before her first sexual contact.			
23	HPV immunization requires two to three injections			
24	HPV immunization can be offered to female children age 9 and above			
25	HPV immunization can protect against cervical cancer?			

SECTION C: ATTITUDE OF EARLY ADOLESCENT GIRLS TOWARDS ACCEPTANCE OF HPV VACCINE

	STATEMENTS	AGREE	DISAGREE	UNDECIDED
26	Young girls between the ages of 9-13 years are not in danger of catching HPV infection			
27	Young girls between the ages of 9-13 years are not at risk of getting cervical cancer			
28	Any young girl who does not have family history of genital wart or cervical cancer does not need HPV vaccine			
29	HPV is not a serious Sexual Transmitted Infection like HIV and gonorrhea			
30	Since HPV infection does not present any symptoms, it is not dangerous			
31	Cervical cancer is painful, deadly and associated with future childlessness.			
32	Immunization generally do not prevent diseases			
33	HPV immunization is only beneficial to the older girls			
34	HPV immunization cannot prevent cervical cancer			
35	HPV immunization is not readily available for people who want to be vaccinated			
36	HPV immunization might encourage earlier sexual initiation among girls between 9 to 13 years if given to them at that age			
37	The HPV immunization may be too costly for parents to afford			
38	Many young girls are likely to refuse HPV immunization because they are afraid of injections and injection complications			
39	Majority of young girls do not have enough information about HPV immunization.			
40	Most girls who are between 9-13 years would get HPV immunization even if their parents refused because they are the ones who will become infected with the disease			

SECTION D: FACTORS (BARRIERS AND MOTIVATION) THAT COULD AFFECT WILLINGNESS OF FEMALE EARLY ADOLESCENTS TOWARDS ACCEPTANCE OF HUMAN PAPILLOMA VIRUS VACCINE

41. If the HPV immunization is available, will you willing to take it?

1. Yes [] 2. No []

	STATEMENTS	1 YES	2. NO	3. I DON'T KNOW
42	I would take the HPV immunization if I see my friends taking it in school			
43	I would take the HPV immunization because I have seen that when children take immunization, they grow up healthy and do not get that disease they are being immunized for			
44	I would take the HPV immunization having seen how a woman who had cervical cancer suffered and died in a movie or my neighborhood			
45	I am confident to accept the HPV immunization because I now know the threat of not taking it			
46	I can take the HPV immunization if the government will offer a free vaccine for young girls aged 9 to 13 years.			
47	I am afraid of taking injections			
48	I need more information about the HPV immunization before I could decide if to take it or not			
49	I am still a small girl, it is only older girls/women that need the HPV immunization			
50	My family neither believe in drugs nor HPV immunization			
51	I have had sex before so, I don't need the HPV immunization anymore			
52	The cost of taking the HPV immunization may be very high and my parents cannot pay for it			

53. Other reasons why I may or may not take the HPV immunization are

.....

SECTION E: TYPES OF INFORMATION EARLY ADOLESCENTS NEED TO MAKE INFORMED DECISION ON HPV VACCINE UPTAKE

54	Please list all the things you wish to know about cervical cancer, HPV and HPV immunization which may help you to make a decision on if you would like to take the vaccine or not
i.	
ii.	
iii.	
iv.	

v.	
vi.	
vii.	
viii.	
ix.	

THANK YOU FOR YOUR TIME.

UNIVERSITY OF IBADAN LIBRARY

APPENDIX 2

JUNIOR SECONDARY FAMILY LIFE/HIV EDUCATION CURRICULUM THEME 3: HIV INFECTION

Topic	PERFORMANCE OBJECTIVES	CONTENTS (CORE)	ACTIVITIES	TEACHING AND LEARNING MATERIALS	EVALUATION GUIDE
Sexually Transmitted Infection (STIs)	<p>Students should be able to:</p> <ol style="list-style-type: none"> 1. define STIs and HIV/AIDS 2. name different types of STIs 3. List the Signs & Symptoms of AIDS 4. describe modes of transmission of STIs, HIV 5. list ways in which HIV is not transmitted. 	<ol style="list-style-type: none"> 1. a. Definition of STIs, HIV/AIDS 2. Types of STIs include: <ul style="list-style-type: none"> <input type="checkbox"/> Chlamydia <input type="checkbox"/> Gonorrhoea <input type="checkbox"/> Herpes <input type="checkbox"/> Syphilis <input type="checkbox"/> Chancroids <input type="checkbox"/> Genital warts <input type="checkbox"/> HIV/AIDS <input type="checkbox"/> Candidiasis <input type="checkbox"/> Trichomoniasis 3. Signs and symptoms of AIDS <ul style="list-style-type: none"> <input type="checkbox"/> Prolonged cough <input type="checkbox"/> Prolonged diarrhoea <input type="checkbox"/> Unexplained weight loss <input type="checkbox"/> Loss of appetite <input type="checkbox"/> Prolonged malaria <input type="checkbox"/> Rashes etc. 4. Modes of transmitting STI/HIV: <ul style="list-style-type: none"> <input type="checkbox"/> Through unprotected sexual intercourse (STI/HIV) <input type="checkbox"/> From infected mother to her baby (STI/HIV) <input type="checkbox"/> Transfusion of infected (unscreened blood) (STI/HIV) <input type="checkbox"/> Use of contaminated sharp/cutting objects like razor blades, syringes, (HIV) barbers clippers etc. 5. Ways in which HIV not transmitted <ul style="list-style-type: none"> <input type="checkbox"/> Handshake <input type="checkbox"/> Eating <input type="checkbox"/> Sharing clothes <input type="checkbox"/> Sleeping with them <input type="checkbox"/> Swimming. 	<ol style="list-style-type: none"> 1. Teacher to explain that STI stands for sexually transmitted infections while HIV stands for Human immuno-deficiency virus and AIDS stands for Acquired immune Deficiency Syndrome. 2. Class conducts research on diseases that are sexually transmitted and discussed findings. 3. Teacher explains signs and symptoms <ul style="list-style-type: none"> <input type="checkbox"/> Teacher shows pictures of infected people, <input type="checkbox"/> Where available teachers shows a film on PLWA i.e. people living with AIDS 4. Guest lecture by a medical provider on modes of transmitting STIs and HIV. 5. Teacher explains through posters ways HIV/AIDS is not transmitted. 	<ol style="list-style-type: none"> 1. Posters, Pictures, Films that introduce STDs and HIV/AIDS 2. Poster-listing modes of transmission. 3. Three cards labelled, High Risk, No Risk also cards with various behaviours written one per card. H = High Risk L = Low Risk N = No Risk Charts containing the following behaviours 4. Coloured / painted pebbles in red, blue, green, yellow <ul style="list-style-type: none"> <input type="checkbox"/> Posters <input type="checkbox"/> Pictures infected people <input type="checkbox"/> Film on PLWA. 	<ol style="list-style-type: none"> 1. Write short definition of STI 2. Name 3 types of STIs 3. List three ways STIs may be transmitted. 4. List three ways HIV can be transmitted. 5. Write a short essay on the effects of HIV and AIDS. List four ways people cannot contact HIV/AIDS. 6. Name 5 symptoms of AIDS.

APPENDIX 3

Cervical Cancer



There are five main types of cancer that affect a woman's reproductive organs: cervical, ovarian, uterine, vaginal, and vulvar. As a group, they are referred to as gynecologic (GY-neh-kuh-LAH-jik) cancer. (A sixth type of gynecologic cancer is the very rare fallopian tube cancer.)

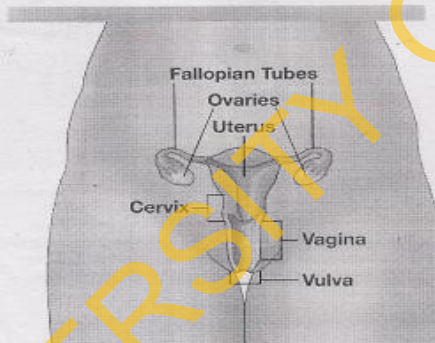
This fact sheet about cervical cancer is part of the Centers for Disease Control and Prevention's (CDC) *Inside Knowledge: Get the Facts About Gynecologic Cancer* campaign. The campaign helps women get the facts about gynecologic cancer, providing important "inside knowledge" about their bodies and health.



What is cervical cancer?

Cancer is a disease in which cells in the body grow out of control. Cancer is always named for the part of the body where it starts, even if it spreads to other body parts later.

When cancer starts in the cervix, it is called cervical cancer. The cervix is the lower, narrow end of the uterus. The cervix connects the vagina (the birth canal) to the upper part of the uterus. The uterus (or womb) is where a baby grows when a woman is pregnant.



Cervical cancer is the easiest gynecologic cancer to prevent with regular screening tests and follow-up. It also is highly curable when found and treated early.

Who gets cervical cancer?

All women are at risk for cervical cancer. It occurs most often in women over age 30. Each year, approximately 12,000 women in the United States get cervical cancer.

The human papillomavirus (HPV) is the main cause of cervical cancer. HPV is a common virus that is passed from one person to another during sex. At least half of sexually active people will have HPV at some point in their lives, but few women will get cervical cancer.

What are the symptoms?

Early on, cervical cancer may not cause signs and symptoms. Advanced cervical cancer may cause bleeding or discharge from the vagina that is not normal for you, such as bleeding after sex. If you have any of these signs, see your doctor. They may be caused by something other than cancer, but the only way to know is to see your doctor.

Are there tests that can prevent cervical cancer or find it early?

There are two tests that can either help prevent cervical cancer or find it early:

- The Pap test (or Pap smear) looks for precancers, cell changes, on the cervix that can be treated, so that cervical cancer is prevented. The Pap test also can find cervical cancer early, when treatment is most effective. The Pap test is recommended for women aged 21-65 years old.
- The HPV test looks for HPV—the virus that can cause precancerous cell changes and cervical cancer.

Inside Knowledge is an initiative that supports the Gynecologic Cancer Education and Awareness Act of 2005, or Johanna's Law, which was unanimously passed by the U.S. House and Senate in December of 2006, and signed into law in January 2007.

www.cdc.gov/cancer/knowledge 1-800-CDC-INFO

APPENDIX 3b

When should I get tested for cervical cancer?

The Pap test is one of the most reliable and effective cancer screening tests available. You should start getting regular Pap tests at age 21. If your Pap test results are normal, your doctor may say that you will not need another Pap test for three years.

The HPV test can be used to screen for cervical cancer along with the Pap test in women aged 30 years and older. It also is used to provide more information when women aged 21 years and older have unclear Pap test results.

If you are age 30 or older, you may choose to have an HPV test along with the Pap test. If the results are normal, your chance of getting cervical cancer in the next few years is very low. Your doctor may then say that you can wait up to five years for your next screening.

For women aged 21-65, it is important to continue getting a Pap test as directed by your doctor—even if you think you are too old to have a child or are not having sex anymore. However, your doctor may tell you that you do not need to have a Pap test if either of these is true for you:

- You are older than 65 and have had normal Pap test results for several years.
- You have had your cervix removed as part of a total hysterectomy for non-cancerous conditions, like fibroids.

What raises a woman's chance of getting cervical cancer?

Almost all cervical cancers are caused by HPV. You are more likely to get HPV if you started having sex at an early age, or if you or your partner have had sex with several others. However, any woman who has ever had sex is at risk for HPV.

There are many types of HPV. Usually HPV will go away on its own, but if it does not, it may cause cervical cancer over time.

In addition to having HPV, these things also can increase your risk of cervical cancer:

- Smoking.
- Having HIV (the virus that causes AIDS) or another condition that makes it hard for your body to fight off health problems.
- Using birth control pills for a long time (five or more years).
- Having given birth to three or more children.

How can I prevent cervical cancer?

- Get the HPV vaccine. It protects against the types of HPV that most often cause cervical, vaginal, and vulvar cancers. It is given in a series of three shots. The vaccine is recommended for 11 and 12 year old girls. It is also recommended for girls and women aged 13 through 26 who did not get any or all of the shots when they were younger. (Note: The vaccine can be given to girls beginning at age 9.)
- See your doctor regularly for a Pap test that can find cervical precancers.
- Follow up with your doctor, if your Pap test results are not normal.
- Don't smoke.
- Use condoms during sex.*
- Limit your number of sexual partners.

What should I do if my doctor says I have cervical cancer?

If your doctor says that you have cervical cancer, ask to be referred to a gynecologic oncologist—a doctor who has been trained to treat cancers like this. This doctor will work with you to create a treatment plan.

Where can I find free or low-cost Pap tests?

If you have a low income or do not have insurance, you may be able to get a free or low-cost Pap test through the National Breast and Cervical Cancer Early Detection Program. To learn more, call 1-800-CDC-INFO or visit www.cdc.gov/cancer/nbccedp.



Where can I find more information about cervical and other gynecologic cancers?

Centers for Disease Control and Prevention: 1-800-CDC-INFO or www.cdc.gov/cancer

National Cancer Institute: 1-800-4-CANCER or www.cancer.gov

* HPV infection can occur in both male and female genital areas that are covered or protected by a latex condom, as well as in areas that are not covered. While the effect of condoms in preventing HPV infection is unknown, condom use has been associated with a lower rate of cervical cancer.

CDC Publication #99-9123, Revised July 2012



U.S. Department of Health and Human Services
Centers for Disease Control and Prevention



Appendix 4a (List of Private Secondary School)

MINISTRY OF EDUCATION, OYO STATE

CURRICULUM DEVELOPMENT AND EVALUATION DEPARTMENT

2014/2015 BECE SCHOOL CODE (PRIVATE SCHOOLS)

NAME OF LOCAL GOVERNMENT: IBADAN NORTH LGA CODE: P 06

S/N	NAME OF SCHOOL	SCHOOL CODE	REGULAR STUDENTS	REPE
1	Fountains International High School (New Bodija)	V06001	✓	
2	Francis M. College - Agbowo (Bodija)	V06002	✓	
3	Maverick College - Sanggo	V06003		
4	Bishop Akinyele Memorial Grammar School (Dike Area)	V40604		
5	Confex High School (Oke Itumu)	V06005		
6	God's Blessing Com. College (Yemetu)	V06006	✓	
7	Marella College (New Bodija)	V06007	✓	
8	Oritamefa Baptist Model School (Total Garden)	V06008		
9	All Soul High School (Old Bodija (Housing))	V06009	✓	
10	Wabrook College (Samandala)	V06010		
11	Reliance Int'l High School (Prometa (Eleyele))	V06011		
12	Ise Oluyemi Montessori High School (G.R.A. Agodi)	V06012		
13	St. Theresa Minor Seminary School (Dike Area)	V06013		
14	Bodija International College (Old Bodija)	V06014	✓	
15	Ade Royal College (Oke Itumu)	V06015		
16	SEDEPO Inter'l College (Oke Itumu)	V06016		
17	Sam Chris College (Asui)	V06017		
18	Abiodun Metro College (Agbowo)	V06018		
19	Starlite College (Poly Road Sanggo)	V06019		
20	Ikolaba College (Old Bodija)	V06020		
21	City of Faith College (Agbowo)	V06021		
22	Royal Fern High School (Ashi - Bodija)	V06022		
23	Anchor High School (Osumotokin Housing Rd)	V06023		
24	Christ The King (Ashi - Baburum)	V06024	✓	
25	Anchor Metro College (Ashi)	V06025		
26	Desapig High School (Oke Itumu)	V06026		
27	Ebenezer B/H School (Oke Itumu)	V06027		
28	The Apostolic College (Poly Road)	V06028		
29	Kingsgate College (Ashi Baburum)	V06029	✓	
30	Papal M/S Agbowo (Agbowo)	V06030	✓	
31	Graceville College (New Bodija)	V06031		
32	Starlin College (Queen Elizabeth Rd)	V06032		
33	Al-Haq Comprehensive College (Baburum)	V06033		
34	Palmtree College (Samandala)	V06034		
35	Scout's Heights (Aare, Bodija)	V06035		
36	Skyscraper Mega Heights (Old Bodija)	V06036		
37	Hilltop High School (Agbowo - Bodija)	V06037		

Appendix 4b (conti. List of Private Secondary School)

	Wemlak High School	Sango-Poly RI
39	Goshen Heights School	Are Fawos
40	As.sabbaq College	Bodija Oja
41	Brightville College	Ashi
42	Subuola Secondary School	GRA Ajodi
43	Ripples College	Ashi
44	Imam Zubair Model High School	Barika Agbowo
45	Zion College	Agbowo
46	Muslim Comm. Model College	Ashi
47	Fountain of Knowledge High School	Oka Uturu

Appendix 4c (List of Public Secondary Schools)


MINISTRY OF EDUCATION, OYO STATE
 CURRICULUM DEVELOPMENT AND EVALUATION DEPARTMENT
BECE SCHOOL CODE (PUBLIC SCHOOLS)
 NAME OF LOCAL GOVERNMENT: IBADAN NORTH LGA CODE: P 06

S/N	NAME OF SCHOOL	SCHOOL CODE	REGULAR STUDENTS	REPEATERS	TOTAL
1	ABADINA COLLEGE, U.I., IBADAN	P06001			
2	ABADINA GRAMMAR SCHOOL, IBADAN	P06002			
3	ANGLICAN COMMERCIAL GRAMM. SCHL, TOTAL GARDEN	P06003			
4	BASHORUN/OJOO HIGH SCHOOL	P06004			
5	BISHOP O'NABANJO HIGH SCHOOL, BODIJA	P06005			
6	CHESHIRE HIGH SCHOOL, SANGO	P06006			
7	COMMUNITY GRAMMAR SCHOOL, IJOKODO	P06007			
8	COMMUNITY GRAMMAR SCHOOL, MOKOLA	P06008			
9	COMMUNITY HIGH SCHOOL, SAMONDA	P06009			
10	COMMUNITY SECONDARY SCHOOL, IKOLABA	P06010			
11	COMMUNITY SECONDARY SCHOOL, SANGO	P06011			
12	EBENEZER GRAMMAR SCHOOL, INALENDE	P06012			
13	HUMANI ALAGA HIGH SCHOOL, SANGO	P06013			
14	I.M.G. GRAMMAR SCHOOL, YEMETU IGOSUN	P06014			
15	I.M.G. GRAMMAR SCHOOL, YEMETU ALADORIN	P06015			
16	IJOKODO HIGH SCHOOL, IJOKODO	P06016			
17	IKOLABA GRAMMAR SCHOOL, IKOLABA	P06017			
18	IKOLABA HIGH SCHOOL, IKOLABA	P06018			
19	IMMANUEL COLL. HIGH SCHOOL, ORITA U.I	P06019			
20	IMMANUEL GRAMMAR SCHOOL, U.I	P06020			
21	ISLAMIC DAY SECONDARY SCHOOL, BASHORUN	P06021			
22	ISLAMIC HIGH SCHOOL BASHORUN	P06022			
23	METHODIST GRAMMAR SCHOOL, BODIJA	P06023			
24	METHODIST SECONDARY SCHOOL, NEW BODIJA	P06024			
25	MOUNT OLIVET GRAMMAR SCHOOL	P06025			
26	NAWAR-UD-DEEN HIGH SCHOOL, NALENDE	P06026			
27	OBA AKINBIYI HIGH SCHL I, CULTURAL CENTRE, MOKOLA	P06027			
28	OBA AKINBIYI HIGH SCHL II, CULTURAL CENTRE, MOKOLA	P06028			
29	OBA AKINYELE MEM. HIGH SCHOOL BASHORUN	P06029			
30	POLYTECHNIC HIGH SCHOOL, POLY. CAMPUS	P06030			
31	COMMUNITY HIGH SCHOOL, AGBOWO/BODIJA, IBADAN	P06031			
32	ST. BRIGID'S SEC. SCHOOL, MOKOLA	P06032			
33	ST. GABRIEL SEC. COMM. GRAMM SCHL., SA BO	P06033			
34	ST. LOUIS GRAMMAR SCHOOL ORITA BASHORUN	P06034			
35	ST. PATRICK'S GRAMMAR SCHOOL, ORITA BASHORUN	P06035			
36	UNITED SECONDARY SCHOOL, IJOKODO	P06036			

Tel: 011-291-2345
 Fax: 011-291-2345
 Email: info@university.edu.ng

Appendix 5 (Ethical approval)

TELEGRAMS..... TELEPHONE.....


OYO STATE, THE PACESETTER

MINISTRY OF HEALTH
DEPARTMENT OF PLANNING, RESEARCH & STATISTICS DIVISION
PRIVATE MAIL BAG NO. 5027, OYO STATE OF NIGERIA


Your Ref. No.
All communications should be addressed to
the Honorable Commissioner quoting
Our Ref. No. AD 13/ 479/ 930 July, 2015

The Principal Investigator,
Faculty of Public Health,
College of Medicine,
University of Ibadan,
Ibadan.

Attention: Mboh Chinenyenwa
ETHICAL APPROVAL FOR THE IMPLEMENTATION
OF YOUR RESEARCH PROPOSAL IN OYO STATE

This is to acknowledge that your Research Proposal titled: "Attitude and Willingness to Accept Human Papillomavirus Vaccine among Early Adolescent Girls in Ibadan North Local Government Area." has been reviewed by the Oyo state Review Ethical Committees.

2. The committee has noted your compliance. In the light of this, I am pleased to convey to you the full approval by the committee for the implementation of the Research Proposal in Oyo State, Nigeria.
3. Please note that the National Code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations, in line with this, the Committee will monitor closely and follow up the implementation of the research study. However, the Ministry of Health would like to have a copy of the results and conclusions of findings as this will help in policy making in the health sector.
4. Wishing you all the best.


Sola Akande (Dr)
Director, Planning, Research & Statistics
Secretary, Oyo State, Research Ethical Review Committee

UNIVERSITY OF IBADAN LIBRARY

UNIVERSITY OF IBADAN LIBRARY