DETERMINANTS OF UPTAKE OF CERVICAL CANCER PREVENTION SERVICES AMONG FEMALE HEALTH CARE WORKERS IN ABIA STATE NIGERIA

BY

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DECLARATION

I declare that the work in this thesis/dissertation entitled "**DETERMINANTS OF UPTAKE OF CERVICAL CANCER PREVENTION SERVICES AMONG FEMALE HEALTH CARE WORKERS IN ABIA STATE NIGERIA**" was carried out by me in the Department of Community Medicine, under the supervision of Dr A.A. Gobir and Prof. K. Sabitu. The information derived from the literature has been duly acknowledged in the text and a list of references provided. No part of this project dissertation has been previously presented for another degree or diploma at this or any other Institution.

_____ _____

Uloaku Chidinma EMMA- UKAEGBU Date

CERTIFICATION

This dissertation entitled "**DETERMINANTS OF UPTAKE OF CERVICAL CANCER PREVENTION SERVICES AMONG FEMALE HEALTH CARE WORKERS IN ABIA STATE**" by Uloaku Chidinma EMMA-UKAEGBU, under our supervision, meets the regulations governing the award of the degree of Masters in Public Health of the Ahmadu Bello University, and is approved for its' contribution to knowledge and literary presentation.

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DEDICATION

I dedicate this work to my creator and the lifter of my head. Without Him, there is nothing that I can possibly achieve.

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I want to return every gratitude and praise to God for the gift of life, knowledge and wisdom to undertake this research work. I am indebted to my untiring, selfless and humble supervisors Dr. A.A. Gobir and Prof. K. Sabitu. It was indeed my privilege to learn some lifelong lessons from these personalities.

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ABBREVIATIONS

AIDS	-	Acquired Immune Deficiency syndrome
CC	-	Cervical Cancer
CHEW	-	Community Health Extension Workers
CIN	-	Cervical intraepithelial neoplasia
EPI	-	Expanded Programme on Immunization
FHWs	-	Female Health Workers
Globacan	-	Global cancer
HIV	-	Human Immuno Deficiency virus
HPV	-	Human papilloma virus
LGA	-	Local Government Area
O & G	-	Obstetrics and Gynecology
Pap smear	-	Papanicouli smear
PATH	-	Patnership For Transforming Health
PHC	-	Primary Health Care
STI	-	Sexually Transmitted Infections
VIA	-	Visual inspection with acetic acid
VILI	-	Visual Inspection with Lugol's Iodine
WHO	-	World Health Organization

ABSTRACT

Cervical cancer remains the commonest genital tract cancer despite the availability of effective prevention services that makes it preventable. Primary prevention can be achieved by vaccinating adolescent girls and women against infection by the human papilloma virus (HPV) while secondarily Pap smear screening is the gold standard for early detection for prompt treatment of precancerous lesions.

The objectives of this study was to determine the knowledge, practice and determinants of uptake of cervical cancer prevention services by the female health care workers in Abia state, Nigeria.

A descriptive cross sectional survey design was adopted for this study. A sample size of 376 was used for the study. A semi structured interviewer administered questionnaire which sought information on socio-demographic characteristics, sexual and reproductive history, knowledge and perception of cervical cancer, uptake of prevention services and deterrents to service uptake was used for data collection.

Data was analyzed using SPSS 21 statistical software with level of statistical significance set at $P < 0.05$.Almost all 372(98.9%) of the respondents were aware of cervical cancer, 305(81.1%) aware of Pap smear and 240(64.6%) aware of HPV vaccine. The mean knowledge score was 66.8 ± 11.9 while the mean perception score in this study was 76.0 ± 14.6. Of the 376 study subjects, only 44(11.7%) had ever done the screening test and 17(7.3%) had daughters who had taken HPV. The factors associated with uptake of HPV vaccination were income, type of facility, professional cadre, History of STI and recommending HPV vaccine for others. The predictors of HPV vaccine uptake were Type of facility (P value <0.032; AOR 3.24; 95% CI: 1.11-9.51). Professional cadre (P value 0.035; AOR 5.60; 95% CI: 1.13-27.84) and Recommending HPV

vaccination for others ((P value 0.007; AOR 4.44; 95% CI: 1.51-13.07).The factors associated with Pap smear uptake were marital status, type of facility, professional cadre and recommending Pap smear for others while the actual predictors of Pap smear uptake were: Type of facility (P value 0.044; OR 2.01; 95% CI: 1.02-3.97) and having recommended Pap smear for others (P value <0.001; AOR 4.88; 95% CI: 2.39-9.94).

In conclusion, despite a fair level of knowledge of cervical cancer prevention services, the uptake of HPV vaccination and Pap smear was low. It is recommended that the female workers in the tertiary health facilities and female pharmacists should be utilized to increase awareness and recommend these prevention services to other women in the population to reduce the incidence of cervical cancer.

Key words: Cervical cancer, Prevention services, Uptake, Predictors, Female Health Workers.

CHAPTER ONE

INTRODUCTION

1.1 Background

Cervical cancer is the commonest gynecological cancer in developing countries and second commonest in the world. Cervical cancer ranks as the 2nd most frequent cancer among women in Nigeria, and the second most frequent cancer among women between 15 and 44 years of age.[1] The greatest burden of cervical cancer occurs in the developing world where the mortality ranges from 10 to 35 per 100 000 compared with 2 to 4 deaths per 100 000 in developed nations and this difference is attributed to effective screening service[2] Cervical cancer has claimed the lives of many women worldwide and it is estimated that about 80% or more of the world burden of cervical cancer is in the developing countries.[3] Cervical cancer is one of the most preventable cancers that causes cancer deaths in women in developing countries. Up to 80% of diagnosed cases of cervical cancer are detected in the advanced stages which invariably has a negative implication on the successful outcome of treatment.[45] According to a CDC publication, about 85% of all new cervical cancer cases and 87% of all cervical cancer deaths occur in low- and middle-income countries.[6]

Cervical cancer does not develop suddenly but is preceded by precancerous changes of the cervix that are known as cervical intraepithelial neoplasia (CIN).Cervical intraepithelial neoplasia is categorized as increasing levels of severity: CIN1, CIN2, and CIN3. Human Papilloma virus (HPV), the primary etiologic agent of cervical cancer has been implicated to be the probable cause of almost all cervical cancers worldwide. Infection with high-risk human papilloma virus (HPV) types is a necessary, although not sufficient, cause of almost all cases of cervical cancer.[7] However over 70% of invasive cervical cancers are attributed to HPVs 16 or 18.[8] Cervical cancer

sequel to Human Papilloma virus infection is a multistep process that typically occurs over several years or even decades however research reveals that the clinical course varies amongst individuals. In Nigeria, 24.8% of the general female population were found to have HPV infection with an incidence of 250/100,000 women[9] Papanicouli (Pap) smear test is considered one of the best approaches to reduce cervical cancer incidence worldwide.[10]

Factors associated with the development of cervical cancer includes primarily HPV infection, established co factors include tobacco smoking, high parity, long-term hormonal contraceptive use, and co-infection with HIV. Co-infection with Chlamydia trachomatis and herpes simplex virus type-2, immune-suppression, and certain dietary deficiencies are other probable cofactors. Protective factors for cervical cancer will include improved male circumcision and use of condoms.

A disproportionate 88% of worldwide deaths due to cervical cancer occurred in developing countries in 2008.[11] The survival rate for cervical cancer in sub-Saharan Africa in 2002 was 21% compared with 70% and 66% in the United States and Western Europe, respectively.[12] In the last four decades, the incidence and mortality from cervical cancer declined significantly in the developed countries because of their utilization of cervical cancer prevention services. The factors that can lead to underutilization of cervical cancer prevention services include lack/inadequate information, un empowerment of women, poorly developed preventive health care services, poor utilization of available preventive health services, ignorance, inadequacy and lack of awareness of screening centers, poverty and cultural beliefs amongst others.

Cervical cancer is the easiest gynecologic cancer to prevent with available cervical cancer prevention services. Prevention services can be primary, secondary or tertiary. Primary

prevention can be achieved by vaccinating adolescent girls and women against infection by the human papilloma virus (HPV) before their first sexual exposure. Secondarily it can be prevented through screening and prompt treatment of identified precancerous lesions while tertiary prevention may involve ablative surgery, radiotherapy or chemotherapy. Cervical cancer is an infection related cancer thus providing an interphase between communicable and non-communicable diseases. There is a paradigm shift from communicable to non-communicable diseases which includes cancers as the major source of morbidity and mortality in Sub Saharan Africa with Nigeria included. Sadly Nigeria does not have any cervical cancer screening policy guidelines except for persons living with HIV/AIDs. The country has not made adequate physical and fiscal provisions for these screening services such as is obtainable in most developed countries.

Cervical cancer prevention services for the purposes of this study refers to HPV vaccination and pap smear screening while female Health Workers refers to the female health workers with some professional academic medical training.

1.2 Problem Statement

Cervical cancer is a major reproductive health problem. Globally, Cervical cancer is the second most common malignancy affecting women and the commonest female genital cancer in Nigeria.[1,13] Worldwide, and 530,000 new cases of cervical cancer are identified each year, with more than 50% deaths. Approximately 85% of these deaths occur in Low and Middle-income countries with Nigeria accounting for more than 10% of the cases.[14] Cervical cancer was the leading cause of gynecological cancers in Abia, Awka, Ilorin and Northern Nigeria, accounting for 54.1%, 59.3%, 63,1% and 65.7% respectively of all gynecological cancers in those parts of the country.[15,16,17,18] In a study conducted on Ibos from South Eastern Nigeria, the cervical cancer

incidence rate in South Eastern Nigeria was 11.5% and the incidence was found to have doubled from its initial rate in 2007 by the year 2010.[19] The prevalence rate of cervical cancer in the general population in Abia state was however not found.

There is a wide variation in the awareness level of the female health care workers about HPV vaccination which ranges from 30 to 84.8%. [20,21,22,23] There are few studies that have assessed the actual uptake of HPV vaccination. A study amongst female undergraduates being as low as 0%.[24]and another study as high as 49.2% by the eligible adolescent daughters of female health workers.[20] Awareness of pap's smear amongst female health workers ranges from 65 to 91%.[25,26] The actual uptake of pap's smear for female health workers is still low ranging from 4 to 27.8%.[25,26,27] Regrettably the uptake of cervical cancer prevention services across the country is even much lower in the general population ranging from 0.6% to 8.7%.[27,28,29,30,31]

A Sub Saharan African meta analytic review revealed that the gender of service provider and violation of privacy as a barrier to utilization of cervical cancer screening services as a major reason for low uptake of cervical cancer screening.[32]as well some Nigerian studies too.[33,34] There is no policy for cervical cancer screening and vaccination in Abia state and HPV vaccination is not yet included in the immunization schedule. Another study carried out among market women in Zaria revealed that they will prefer to be attended by female health providers.[35]

1.3 Justification

Carcinoma of the cervix is a preventable disease; its prevention, among other ways, is through detection of premalignant stages of the disease and treatment. The value of cervical cancer screening in reducing the risk of cervical cancer and mortality has been established, and the risk of developing cervical cancer can be reduced by up to 80% through regular screening. It is

known that pre-cancerous lesions are detectable for 10 years or more before cancer develops.[14] Most studies conducted amongst female health workers revealed that the knowledge of cervical cancer screening is high amongst the health workers[20,36,37,38] however the actual uptake of screening services is low.[25,36,39,40,41,42] The knowledge, perception and actual practice of female health care workers relating to cervical cancer prevention services will affect the occurrence of cervical cancer amongst them. This will also invariably influence the type of role they will play in educating other women and disseminating these services.

There is paucity of data on cervical cancer prevention services found among FHWs in Abia state and no data on HPV vaccination in Abia state was found. Studies have shown that Health workers are predictors of use of cervical cancer prevention services. The cervical cancer prevention services are performed by qualified health professionals and they also serve as trend setters for other women in health preventive services utilization. It is desirable to have information on the knowledge and practice of the female Health workers to help bridge any identified gaps and arm them with better understanding of the benefits of cervical prevention services so that they can become effective agents in creating and disseminating information about the importance of same to their clients. Some studies have recommended that health workers should be targeted first because of their pivotal role in any planned future screening programmes.

The effectiveness of a vaccine delivery program depends largely upon the awareness, intention to recommend and prescribe and use of the vaccine.[43,44,45] In anticipation of the introduction of HPV vaccine into the National routine immunization schedule, a study of these health care workers will be a critical step to establish an effective HPV vaccination program in the state. This study on determinants is aimed at identifying the gaps between high knowledge and low

uptake that will influence policy formation, improve utilization and reduce the incidence of cervical cancer among this population. It is also expected to have an effect on their rendition of cervical cancer prevention services to the other women in the general population.

1.4 Research Questions

- What is the level of knowledge of female health workers in Abia state concerning cervical cancer prevention services?
- What is the prevalence of uptake of the different cervical cancer prevention services amongst the female health workers in Abia state?
- What are the determinants of cervical cancer prevention services uptake amongst female health workers in Abia state?

1.5 General and Specific Objectives

1.5.1 Aim of Study

To assess the knowledge, practice and determinants of uptake of cervical cancer prevention services among female health workers in Abia state.

1.5.2 Specific Objectives

- To determine the level of knowledge concerning cervical cancer prevention services among female health workers in Abia state.
- To assess the practice of Pap smear uptake among female health workers in Abia state.
- To assess the practice of HPV vaccination by the adolescent daughters of female health workers in Abia state.
- To identify the factors influencing uptake of cervical cancer prevention services among female health workers in Abia state.

1.6 Operational Definitions

FHWs here refers to female health providers who have undergone some professional training: Doctors, Dentists, Optometrists, nurses, pharmacists, physiotherapists, Laboratory scientists and technicians, school of health graduates all referred to as CHEWs for the purpose of this study.

Cervical cancer prevention services are primary prevention with HPV vaccination among adolescent daughters of the female health workers and Pap smear screening uptake for secondary prevention by the FHWs.

CHAPTER TWO

LITERATURE REVIEW

2.1 Epidemiology of Cervical Cancer

Cervical cancer is a malignant neoplasm of the cervix uteri or cervical area. Most cervical cancers begin in the cells lining the cervix. These cells do not suddenly change into cancer but first gradually develop pre-cancerous changes that may turn into cancer.[46] There are two main types of cervical cancers namely squamous cell carcinoma and adenocarcinoma. About 80% to 90% of cervical cancers are squamous cell carcinomas however a less commonly occurring form called adenosquamous carcinoma or mixed carcinoma also exists having features of both squamous cell carcinomas and adenocarcinoma.

Globally, cancer of the cervix uteri is the 4th most common cancer among women, with an estimated 527,624 new cases and 265,672 deaths in 2012.[47] Worldwide, mortality rates of cervical cancer are substantially lower than incidence with a ratio of mortality to incidence to 50.3%.[47]

Globally, disparities exist in the incidence and mortality from cervical cancer across different regions. The United States, Europe, and North Africa have much lower cervical cancer rates than Zimbabwe, Malawi, and Uganda.[6] In sub-Saharan Africa, about 35 cervical cancer cases are diagnosed for every 100,000 women, compared with only about 7 cases for every 100,000 women in North America.[6] About 23 women per 100,000 die from cervical cancer in Sub-Saharan Africa, compared to about 3 per 100,000 in North America.[6]

Cervical cancer poses a major public health threat to women in many low and medium resourced countries in South and Central America, Sub-Saharan Africa, South and Southeast Asia, where it is still the leading type of cancer among women.[12]

Cervical cancer has the ignoble status of being the cancer with the greatest disparity in its incidence between developed and developing countries. Cervical cancer is now a disappearing disease in the western world because of provision of improved screening services.[6] The age standardized incident rate of cervical cancer per 100,000 women in Africa is 29.3 compared to 11.9 in Europe and 7.7 in North America[11,48] by 2030, WHO predicts that virtually all cervical cancer deaths will occur in developing countries, furthering disparities between richer and poorer countries.[49]

Nigeria having an estimated population of 170 million persons has about 50.33 million women greater than or equal to fifteen years of age in the country are at risk of developing cervical cancer. A current estimate reveals that there are about 14,089 cases of cervical cancer with an estimated 8,240 deaths resulting annually from cervical cancer while the crude incidence rate is17.1 per 100,000 persons per year.[50] It is projected that in 2025, there will be 22,915 new cervical cancer cases and 15,251 cervical cancer deaths in Nigeria.[51] In some Nigerian based studies, cervical cancer was the leading cause of gynecological cancer deaths.[12,52]

Human papilloma virus (HPV) infection is now a well-established cause of cervical cancer. Other known risk factors for cervical cancer include early coital debut, large number of pregnancies, unprotected sex, multiple sex partners, partners with other concurrent partners, sexually-transmitted infections, use of oral contraceptives, family history of cervical cancer, smoking, and immune-suppression including human immunodeficiency virus (HIV) infection.[53]

2.2 Knowledge, Awareness and Willingness to accept Cervical Cancer Prevention Services

Knowledge is considered to be a precursor and essential part of developing behavior/practice. However the relationship between knowledge and practice is not always straightforward, other intermediary factors also come into play. A Kenyan study involving further education of clients on cervical cancer led to increased knowledge concerning cervical cancer post intervention but did not result in increased uptake of the prevention services.[54] This finding was also corroborated in a Nigerian study in Zaria that revealed high knowledge yet low uptake of screening.[35] At variance however is another study that was carried out in Tanzanaia that showed that women with good knowledge of cervical cancer were more likely to have better practice of taking the screening tests.[33]

Concerning HPV infection and vaccination, the knowledge is not optimal. HPV vaccination is the primary prevention that should be taken advantage of to control cervical cancer. Generally people with a poor knowledge of cervical cancer also knew little or nothing about HPV infection and vaccination. Some studies done in Kenya, Nigeria and India respectively all revealed overall low knowledge of cervical cancer as well as no knowledge of HPV vaccination by the participants.[55,56,57.] The relationship between knowledge, willingness to accept and recommend HPV vaccination revealed that a higher knowledge of HPV was however was seen as a predictor of willingness to accept and to recommend HPV vaccination in a study conducted amongst medical students in China.[58] Improving knowledge of HPV infection and vaccination amongst medical students and female health workers might likely provide a good platform for accelerated primary prevention of cervical cancer. Poorer knowledge was found to exist with a lower willingness to accept as was documented in an Indian study where respondents had an overall low knowledge of HPV vaccination and pap smear. In this study, only 46% of women were

willing to accept vaccination, but fewer (21%) were willing to have a Pap smear.[59]In most studies amongst health care workers, the knowledge of cervical cancer and HPV virus infection is higher than the knowledge about HPV vaccination but all of them share in the commonality of willingness of FHWs to accept the vaccination for their adolescent daughters.[20,43,44] Amongst a group of health workers in Obstetrics and gynecology (O&G) practice in Nigeria, the knowledge of cervical cancer and HPV vaccine was very high and the group had gone beyond accepting the vaccine for their daughters to advocating for inclusion of vaccine in the national immunization schedule.[60] However studies among health care workers in Cameroun and another among nurses in a Nigerian study found a high knowledge of cervical cancer but low knowledge of HPV vaccine.[61,62] On the flipside however some study conducted among health workers in Tanzania and Cameroun yielded both low knowledge about cervical cancer in general and HPV vaccination too.[63,64] There is an instance however where the knowledge and awareness of HPV vaccine was as high as 89.2% in a study conducted amongst medical students in India and with a 67.8% willingness to accept.[65]

As expected however, there is a knowledge and awareness gap that exists between female health care workers and other women in the general population. Knowledge and awareness is generally lower in the general population. A study conducted among some female students in Nigeria both showed low knowledge about cervical cancer and low knowledge of HPV vaccination.[66,67] It is worthy to note that lack of awareness and knowledge about cervical cancer and its prevention is an important barrier to women seeking cervical screening or other preventive services. This portends a drawback to the efforts to control cervical cancer as was revealed in a meta analytic study from middle and low income countries and also from an Australian study.[68,69] In Sub Saharan Africa and most developing countries, the knowledge and awareness of cervical cancer

and its prevention is not yet as desired and this situation is caused and further worsened by unavailability and inaccessibility of cervical cancer prevention services.

2.3 Human Papilloma Virus Vaccination and Uptake

The primary etiologic agent for cervical cancer is a vaccine preventable viral infection, Human Papilloma Virus (HPV). One of the most effective public health interventions for combating infectious diseases is the introduction of potent vaccines. Gardasil and Cervarix have been approved and recommended for vaccination against HPV and provides a window of hope to stem the tide of the burden of cervical cancer.[70] Human papilloma virus (HPV) vaccination represents a veritable intervention for the primary prevention of cervical cancer and other HPV-related diseases. Up to 80% of women will acquire an HPV infection in their lifetime.[71] The efficacy of the Gardasil and Cervarix vaccines is enhanced if given before the debut of sexual intercourse before infection with HPV. Gardasil and Cervarix are the trade names for the successful vaccines against cervical cancer in the market. Gardasil is called quadrivalent because it protects against four types of HPV 6, 11, 16 and 18 respectively. While Cervarix is bivalent vaccine because it targets only HPV types: 16 and 18. Three doses of HPV vaccine are recommended. Recommended ages for vaccination are 9 to 25.[72] Vaccination protection is known to last for more than 10years and a meta analytic study conducted in 2011 revealed that adverse effects from vaccination against HPV are not significant.[73] Male vaccination against HPV is currently being practiced in some developed countries however vaccination for males who are known to transmit HPV to their sexual partners is still a subject for debates.

2.3.1 Uptake of HPV vaccination

In the past cervical cancer screening and treatment of precancerous lesions had been the mainstay of control of cervical cancer however HPV vaccines give new promises for a primary

prevention strategy for HPV infection and cervical cancer. The Expanded Programme on Immunization (EPI) has achieved great success with childhood killer diseases reduction throughout the world and thus provides a tested and effective infrastructure that leveraged on to prevent cervical cancer by adding the human papilloma virus (HPV) vaccine to the vaccination schedule. In 2009 WHO released a position paper on HPV vaccines recommending that it should be included in routine national immunization programs as a public health priority.[74] Despite the WHO recommendation, the actual uptake of HPV vaccination is low. By 2013, in United States, initiation rates for the HPV vaccine series were just 57.3% for girls and34.6% for boys, and completion rates were, 40% for girls and 15% for boys. These completion rates are still well below the 2020 target of 80%.[75] and yet much lower in a rural American setting with coverage rate of 23.5%.[76] By 2015, an estimated 40% percent of girls and 60% of boys were yet to be vaccinated and only three American states had achieved coverage rates of greater than 70%. An innovative PATH funded programme achieved commendable levels of HPV vaccine coverage though. The PATH vaccine prevention programme utilized different delivery strategies such as school based, health center based, child health plus days that all leveraged on existing EPI programme structure to boost HPV vaccination uptake. The programme achieved through school-based programmes: 82.6% in Peru, 88.9% in Uganda and 96.1% in Viet Nam. In India, through a campaign approach using child plus days a77.2% coverage was achieved.[77]These enviable HPV vaccination coverage rates are worthy of further exploration. Another South African project achieved a coverage rate of 97.8%.[78] Other demonstration projects that yielded high HPV vaccine coverage rates include Tanzanian study with a 79% three -dose vaccination coverage.[79]

Beyond these strategies and demonstration projects seen in other countries, the coverage rates of HPV vaccination is not well documented in Nigeria. A study conducted among female medical students in Lagos University in 2014 revealed that only 4.1% of them had received at least one dose while 1.2% had completed the three doses.[80] While another study done in South South Nigeria among undergraduate students in Delta state had only 4.2% HPV vaccine coverage. A wide divergence was however observed from a study conducted amongst FHWs in a tertiary institution in Enugu state Nigeria that revealed a 49.2% uptake of HPV vaccination among the eligible daughters of the respondents.[35]

2.4 Cervical Cancer Screening

The effectiveness of cervical cancer screening in preventing cancer and ultimately reducing mortality related to cervical cancer is universally accepted. Cervical cancer is known to have a long precancerous lesion identified from screening. During this protracted period, identified lesions can be adequately treated to prevent progression to the invasive cervical cancer. The aim of the cervical cancer screening is for early detection and early diagnosis and prompt treatment of cancer and precancerous lesions thus providing protection against cervical cancer. Cervical cancer is therefore largely preventable by effective screening programmes and considerable reduction in cervical cancer incidence and deaths has been achieved in developed nations with systematic cytological smear screening programmes.[6] Cervical cancer screening is the best cancer screening test in the history of medicine and most cost effective of all medical screening tests. The screening is painless and takes only about 5 minutes to perform. The tissue changes that lead to cervical cancer usually develop very slowly (over a period of about five to thirty years). Screening can find these changes before cancer develops.

For sexually active women, the available screening tests for cervical cancer include the cytology based test i.e. papanicouli smear (Pap smear) and some visual inspection tests with lugols' iodine (VILI) or visual inspection with acetic acid (VIA). Visual inspection after acetic acid (VIA) has been established as an alternative to cytology based screening. The visual inspection of the acetic acid painted cervix (VIA) is more affordable and more sensitive however the most popular screening test for cervical cancer with high sensitivity and specificity is the Pap smear. In comparism to Pap smear, VIA has a bigger problem of false positives which can inadvertently lead to over-treatment. Screening for HPV can also be undertaken. Pap smear is still the universally accepted method for cervical cancer screening. Cervical cancer can be prevented through regular cytological screening by Pap smear however regrettably more than 80% of diagnosed cases are detected in advanced stages when available treatments prove ineffective. Efficacy of the screening test is optimized when clients undergo the Pap smear test at prescribed interval of 3years however clients with equivocal or borderline abnormality in the cytology result may be require to have a repeat cytology within 6 to 12 months.[10]

2.4.1 Cervical cancer screening uptake

Despite the well-established efficacy of cervical cancer screening in reducing incidence and mortality from cervical cancer, its uptake is still questionable. Most developed western countries have mechanisms in place that account for their higher uptake such as free screening, screening made available routinely and the use of reminder systems to reduce rates of default.[11] These reasons and more could account for the higher rates of uptake seen which ranges from 60% to 80%.[81,82,83] The is a marked inequality between the developed and under developed nations with much lower uptake seen in resource constrained countries ranging from 1% - 15.5%.[26,35,36,40,84]

It is estimated that only about 5% of women in developing countries have been screened for cervical dysplasia in the past 5 years, compared with some 40-50% in developed countries.[85] The uptake of pap smear in Nigeria can be said to be low[25,36] even when compared to other developing countries like Jamaica and Kuwait.[86,87,88]

Amongst female health workers, a pattern of low utilization of cervical cancer screening services have been reported from several studies. A study from Uganda revealed that only 19% of them had been screened.[89] Across the different regions of Nigeria the figures vary ranging from 4.4% in Sokoto[90] to 32.6% from Ibadan.[91] From the South Eastern region of the country, cervical screening uptake was 18% from Enugu and 7.1% from Imo state Nigeria.[26.92.93] The reasons for the low utilization of cervical cancer screening services abound, ranging from cost, poor awareness and coupled by the fact that supporting facilities are either not available or are sparsely distributed therefore causing the screening programs in this setting not to achieve the desired success that is witnessed in more developed countries.[26, 37,93]

2.5 Factors Associated with Uptake of Cervical Cancer Prevention Services

There are different factors associated with utilization of cervical cancer prevention services. For the uptake of Paps smear, some socio demographic factors such as younger age, single marital status, higher educational status [94, 95,96,97] have been found as predictors of cervical cancer screening uptake whereas lower educational attainment, Lower socio economic status and unemployment were associated with poorer uptake of cervical cancer screening.[98,99] Some other studies revealed younger age, being married and higher academic qualification as predictors of cervical cancer screening uptake.[100,101] History of multiple sexual partners and sexually transmitted disease, HIV sero-positivity, Knowledge and perceived susceptibility were important predictors of cervical cancer screening service uptake in another study carried out in

Ethopia.[102] There is a general belief that cervical cancer acquisition has a connotation of sexual promiscuity and this is further authenticated by the pathway of HPV which is a sexually transmitted infection in its causation. There is also a higher likelihood of development of sexually transmitted diseases in women with multiple sexual partners and their visit to the facilities for treatment will bring them closer to cervical cancer screening and vaccination services. Despite this general assumption and belief, a study in EL Salvador found that clients with more sexual partners were less likely to adhere to HPV screening program. [103] However other studies had a divergent finding revealing higher screening participation among women with higher lifetime sexual partners.[100,104,105,106,107]

Concerning health sector factors that are associated with uptake of cervical cancer prevention services, a study in Uganda revealed that recommendation by a health worker and knowing where screening services were offered as predictors of service uptake.[108] The same study also had knowing someone who had previously used the service as being associated with uptake. A similar finding of the impact of health care provider was also seen in a Jamaican study where recommendation by a health provider and frequent interphase with health care provider were associated with higher pap smear uptake.[109] The factors associated with uptake of cervical cancer screening in a Kenyan study were awareness, opinion about cervical screening, cervical screening usefulness, frequency of having cervical screening done and partner support.[110] Some studies show that the use of birth control pills, early age at first sexual intercourse, number of sexual partners, and history of sexually transmitted infections were associated with improved uptake of Pap smear.[105,107] In a study that explored the impact of invitation and recall systems, it was found that recall led to improved utilization of cervical cancer services.[108] This reason has been provided for the wide gap seen between the higher coverage rates in the developed

countries when compared to developing and low income countries where these recall systems are nonexistent.[111]Women who were unaware of screening intervals were less likely to take the pap smear as well as those that believed that screening was necessitated by symptoms.[104]

2.6 Barriers/Deterrents to Uptake of Cervical Cancer Prevention Services

Different factors deter women from actually utilizing cervical cancer prevention services. These factors include lack of awareness, embarrassment, fear of pain, bad experience from a previous screening, worry about a negative finding, lack of spousal consent, not being sexually active, no felt need and not trusting the test, being too busy to squeeze it into their schedule as well as disillusionment to public services. Other factors will include fear of screening procedure, low level of awareness of services, embarrassment and possible violation of privacy, societal stigmatization, cost of accessing services and health service factors like proximity to facility, facility navigation, waiting time and health care personnel attitude. A meta-analysis from Sub Saharan African studies revealed similar reasons across the Sub Saharan African divide despite the diversity in culture and language diversity in the east region.[32]

The barriers against the utilization of HPV vaccination include a failure to recognize cervical cancer as a major public health concern and the non-inclusion of the vaccine in the national routine immunization program in Nigeria.[112] This lack of priority accorded to HPV vaccine would mean that the vaccine can only be accessed by some privileged few and from private settings. The general low awareness and knowledge of HPV and the vaccine has been documented by some studies as deterrents to uptake of HPV vaccine.[113,114,115.116,117]

The high cost of HPV vaccine delivery is another recognized factor. HPV vaccines are not readily available and when available, a single dose of HPV vaccine in Nigeria is estimated to

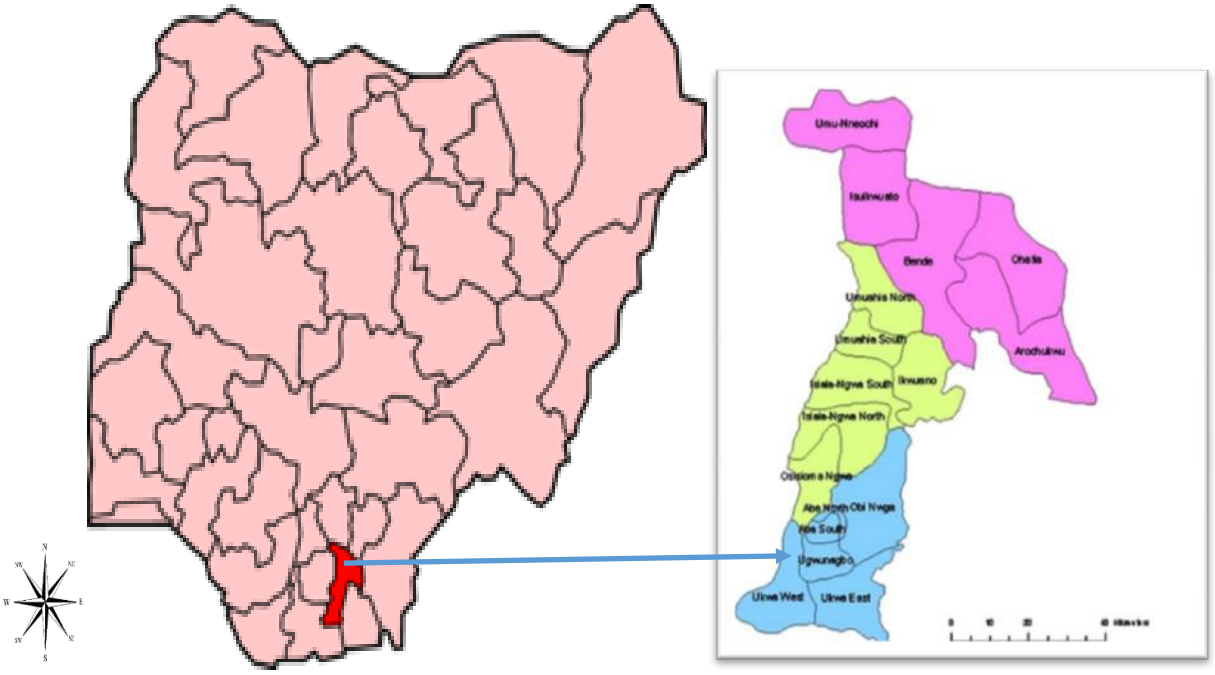
cost about $103 dollars, a cost higher than the minimum monthly wage of an average Nigerian worker. It is pertinent to mention here that complete immunization against HPV consists of three shots of the vaccine. The high price thus limits access to this essential potentially life-saving vaccine.[118] The activities of Anti-vaccination groups who may be posting inaccurate information about vaccine side effects on the web in a domain available to both local and national media should also not be ignored.[119,120]

One Kenyan study found fear of abnormal results and lack of finances as the commonest barriers to cervical cancer screening.[102] A study that was carried out in England, where screening services are provided routinely with recall systems in operation to remind defaulters to come for their screening, a direct relationship was found such that persons who were indifferent to other public services also had a low uptake of screening services.[121] Other barriers suggested include lack of knowledge about the need for cervical screening, practical problems such as appointment times and childcare needs, language difficulties, fear of the test , negative past experiences, lack of spousal approval, fatalistic and cultural beliefs.[122,123,124] Inadequate female providers, ignorance, misconceptions and religious beliefs were provided as the major deterrents to cervical cancer screening in a study in Northern Nigeria.[35] Similarly another Nigerian study in Abuja mentioned religious and cultural obligations of modesty, gender of healthcare providers, fear of disclosure of results, fear of nosocomial infections, lack of awareness, discrimination at hospitals, and need for spousal approval as barriers to uptake of screening.[125] While a study carried out among women attending health facilities in Ibadan found the major factors that deter cervical cancer prevention services screening utilization were ignorance, illiteracy, belief in not being at risk, having many contending issues, nonchalant attitude to their health, financial constraint and fear of having a positive result.[126]

CHAPTER THREE

METHODOLOGY

3.1 Background of Study Area



Map of Nigeria highlighting Abia state Map of Abia state showing the 3 senatorial zones

Figure 1: Map of Nigeria showing the location of Abia state with its senatorial zones

Abia State with three senatorial zones namely North, Central and South respectively. Inhabitants are predominantly civil servants and mostly Christians. There are 3 tertiary Health facilities, 17 secondary facilities, 635 PHCs, 519 registered private health care facilities. Available cervical cancer screening sites located mostly in 2 main cities of Umuahia and Aba. The majority of female doctors are in the tertiary facility. There are about 2, 755 female health workers in the state as seen in unpublished records from the Planning, Research and Statistics office domiciled

in Abia State Ministry of Health. There is no cancer registry in the state. Cervical cancer screening and HPV vaccination are not offered routinely in the state and no policies regarding cervical cancer prevention services in the state.

3.2 Study Design

This was a descriptive cross-sectional study.

3.3 Study Population

All Female Health Workers (FHWs) from tertiary, secondary, primary levels and private health care facilities located in the three senatorial zones in Abia state

3.3.1 Inclusion criteria

Female workers between the ages of 18 to 65years who will consent to participate

3.3.2 Exclusion criteria

Any female health worker that might have undergone treatment for cervical neoplasia or any other neoplastic lesion.

3.4 Sample Size Determination

Sample size calculation for descriptive cross sectional studies

$$n = \frac{Z^2pq}{d}$$

and

$$n_f = \frac{n}{1 + (n/N)}$$

Where:

n = the minimum sample size when the population is $\geq$ 10,000

n_f = the minimum sample size when the population is < 10,000

N = the estimate of the population size (in this case the estimate of female healthcare professionals in Abia State).

Z = the standard normal deviate corresponding to the level of significance

p = the proportion of the sample population estimated to have a particular characteristic (in this case the proportion of female healthcare professional whose adolescent daughter received HPV vaccination in Enugu 2013)[20].

q = (1-p)

d = Level of precision or maximum error of estimate at 95% confidence level, Z = 1.96

At 5% level of precision or maximum error of estimate, d = 0.05

If N = 2,755 and p = 49.2% (0.492), then q = 1-0.492= 0.508

$$n = \frac{1.96^2 \times 0.492 \times 0.508}{0.05^2} = 384.616 \approx$$

n = 384

Correcting for finite population

$$n_{f=} \frac{385}{1 + (385/2{,}755)} = 337.7945859918 \approx 338$$

Giving room for 10% (0.1) non-response,

$$\text{Final sample size} = \frac{338}{1 - 0.1} = \frac{338}{0.9} = 375.55 \approx 376$$

n = 376

3.5 Sampling Technique

Multi-stage sampling technique

Stage 1: Selection of LGAs

The seventeen Local Government Areas in the state are divided into three senatorial zones. From these three senatorial zones of the state, two LGAs per senatorial zone were selected by simple random sampling. The following LGAs were selected thus; Abia North: Umunneochi and Ohafia.

Abia Central: Umuahia North and Ikwuano.

Abia South: Aba South and Isiala Ngwa South respectively.

Stage 2: Selection of Health Facilities.

Primary, Secondary, Tertiary and Private health care facilities were selected following a proportionate sampling depending on the number of female health workers that can be found at the different levels.

2a. Selection from tertiary facilities: Out of the three tertiary health facilities located in the state. Whereas two of them (Federal Medical Centre Umuahia and Abia Specialist Hospital) are both located in the central zone whereas the third, (Abia state University Teaching Hospital) is located in the South. From these three facilities, one tertiary health facility was selected by simple random sampling and the selected facility was Federal Medical Center. Umuahia.

2b. Selection from Secondary Health Facility Level: There is one secondary health facility located in each of the seventeen LGAs in the state. The secondary health facilities located in those two selected LGAs per senatorial zone were included in this study thus giving six secondary health facilities.

2c.Selection from Primary Health Care Level: From each selected senatorial zone, 2 LGAs were selected. 4 PHCs were selected per LGA by simple random sampling from a list of PHCs in each LGA giving a total of 24 Primary Health Care facilities.

2d. Selection from Private Facilities: Private health care facilities with professional female health care workers were selected. 2 facilities per selected LGA giving 12 private facilities.

Stage 3: Selection of the female health Care Workers

3a. Selection of respondents from Tertiary Health Care Facility.

To get the 120 respondents at this level, proportionate sampling method was used to select respondents from the different cadres of female health care workers in FMC Umuahia. Out of 85 doctors, 345 nurses, 40 laboratory staff, 6 Pharmacists, 4 Optometrists and 4 dietitians as seen from the administration records: 21doctors, 85 nurses, 10 laboratory staff, 1 pharmacist , 1 optometrist and I dietitian were selected by systematic random sampling yielding 120 respondents at this level.

3b. Selection of respondents from the Secondary Health Care facilities.

From each of these six secondary health care facilities 10 respondents were selected from each by simple random sampling from a list of the staff obtained from the personnel department thus giving a total of 60 FHWs from this level.

3c. Selection of respondents from Primary Health care facilities

From each of the 24 selected PHC facility, 5 to 6 FHWs were selected by simple random sampling from the sampling frame of staff collected from the personnel department. 140 respondents were recruited at this level.

3d. Selection of respondents from the private facilities

From a total of 12 private facilities selected across the state, 5 respondents were selected from each yielding 60 respondents.

3.6 Study Instruments

A pretested interviewer administered semi-structured questionnaire containing questions on cervical cancer was used for data collection that was divided into 5 sections:

a) Socio-demographic characteristics,

b) Sexual and reproductive history,

c) Knowledge,

d) Risk perception,

e) Practice and deterrents section.

3.6.1 Study variables

Predictor variables: Socio-demographic variables, reproductive and sexual history factors, recommendation of Pap's smear and HPV vaccination, knowledge, risk perception, type of health facility, recommendation of cervical cancer prevention services.

Outcome variables: Pap smear uptake and HPV vaccination uptake.

3.7 Data Collection Methods

Three (3) Female interviewers per senatorial zone were recruited and trained in a university lecture hall for a period of 3days on the objectives of the study. They were also trained on eliciting responses for sensitive reproductive and sexual questions using role plays. Questionnaire was pretested in Abia state Teaching Hospital which is remote site from the study

areas. Following the pretest, the questionnaire was modified before its final use. Double data entry was carried out. Data entry with Epi info 7 software.

3.8 Data Management

3.8.1 Measurement of variables

Percentages were derived for each respondent's response to 20 Knowledge questions covering etiology, clinical features, risk factors, prevention and treatment. Each correct response was scored as 1. The final scores for each respondent for the 20 questions. Knowledge score was graded as >75% =good, 51-74%=fair and <50%=poor

Risk perception questions graded on a Likert scaling of 1. Strongly agree 2. Agree 3. Neither agree nor disagree 4. Disagree 5. Strongly disagree. Percentages were calculated for the weighted scores for each respondent. Risk perception scores were graded as >75% = good, 51-74% = fair and <50% = poor.

3.9 Statistical Analysis

Data collected was checked daily for correctness and completeness. Prior to the start of the analyses the data was checked for errors, outliers and missing values. In the first instance, the data was visually inspected to assess whether the recorded data looked plausible then it was entered with Epi info version 7. Further checks for errors were done using descriptive statistics like frequencies and graphs/histograms. Recoding was done where necessary and data analyzed using statistical package for social science (SSPS version 21). Findings were presented using an appropriate charts and tables. Tests of significance was done where necessary. Means, SD, Median calculated, T test done to test for association for quantitative variables such as age, average monthly income, knowledge and perception score. Proportions derived and Chi square

and Fischer exact tests done to test for association between the predictor variables and outcome variables for qualitative data with level of significance set at p value of .05. Logistic regressions were done for multivariate analysis to derive the determinants of Pap smear and HPV vaccine uptake.

3.10 Ethical Considerations

Ethical clearance was obtained from Abia state Health and Research Ethics committee with reference no AB/MH/E&HR/1/003/15 given on 30th November 2015. Permission was sought from facility heads before interviewing their workers. Signed informed consents were obtained from respondents before administration of the questionnaires.

Equity: Participants were informed and permitted to withdraw at any point they felt they could not continue with the interview.

Confidentiality: was maintained by not collecting data on name, phone number and any personal details traceable to the respondent. Data was stored in pass worded computer for safety and confidentiality

Non maleficence: There was no invasive procedure and the study posed no harm whatsoever to the participants

Beneficence: The knowledge gaps identified from this study about cervical cancer is been bridged by health education sessions which are ongoing amongst the female health workers after questionnaire administration scheduled departmental seminars

3.11 Limitations

Questions on reproductive and sexual history usually seem to be invasive so the questions were carefully structured as well as training the data collectors on the right choice of polite alternatives in explaining the questions to respondents to elicit correct responses to such sensitive data.

CHAPTER FOUR

RESULTS

4.1 Socio demographic characteristics of respondents

Table 1: Socio-demographic characteristics of Female Health Workers in Abia State

Variable	Frequency (n=376)	Percent (%)
Age (year)		
20 – 29	79	21.0
30 – 39	135	35.9
40 – 49	112	29.8
≥ 50	50	13.3
Mean age	**37.6 ± 8.7**	
Marital status		
Married	284	75.5
Single	77	20.5
Divorced/Separated	9	2. 4
Widowed	6	1.6
Type of marriage		
Monogamy	288	76.6
Polygamy	11	2.9
Not applicable (single)	77	20.5
Ethnicity		
Igbo	359	95.5
Others	17	4.5
Religion		
Pentecostal	204	54.3
Catholic	82	21.8
Protestants	75	19.9
Others	15	4.0

Table 1: A total of 376 FHWs were interviewed. The highest number of respondents, 135(35.9%) were between 30-39 years of age, mean age of respondents was 37.637.6 ± 8.7 standard deviation. Majority of the respondents were married and in a monogamous setting. Most of the FHWs in this study were from Ibo ethnic origin were attending Pentecostal churches

Table 2: Socio-demographic characteristics of Female Health Workers in Abia State continued

Variable	Frequency (n = 376)	Percent (%)
Average monthly income (₦)		
≤ 50,000 (Low)	14	3.7
51,000 – 100,000 (Middle)	244	64.9
> 100,000 (High)	118	31.4
Mean average monthly income	96,435 ± 73,831	
Median average monthly income	70,000	
Type of housing		
Boy Quarter/Self-contain	46	12.2
One Bedroom Flat	19	5.1
Two Bedroom Flat	119	31.6
Three Bedroom Flat	149	39.6
Four Bedroom Flat	24	6.4
Duplex	19	5.1
Ownership of household appliances		
Car	123	32.7
Motorcycle	37	9.8
Bicycle	30	8.0
Television set	223	59.3
Radio	167	44.4
Cable television	158	42.0
Standing fan	129	34.3
Gas cooker	144	38.3
Kerosene stove	181	48.1
Firewood	41	10.9

Multiple responses

Table 2 shows the socio economic characteristics of the female health workers where 64.9% of them belonged to the middle income group. A greater proportion (39.6%) of the respondents lived in 3 bedroom apartments.

Table 3: Type of health facility, professional cadre of participant and duration of practice

Variable	Frequency (n = 376)	Percent (%)
Type of health facility		
Primary	140	37.2
Secondary	60	16.0
Tertiary	120	31.9
Private	56	14.9
Professional cadre of participant		
Medical doctor	29	7.7
Dentist	4	1.1
Optometrist	4	1.1
Pharmacist	16	4.3
Nurses	160	42.6
Laboratory scientist	27	7.2
CHEW	133	35.4
Dietician/Nutritionist	3	0.8
Duration of practice (year)		
1 – 5	101	26.9
6 – 10	97	25.8
11 – 15	81	21.5
16 – 20	53	14.1
> 20	44	11.7
Mean duration of practice	**11.7 ± 7.8**	
Median duration of practice	**10.0**	

Table 3 shows that primary health care facilities had the highest number of respondents followed by tertiary level. Majority of the respondents were nurses followed by graduates of school of heath technology represented as CHEW for the purposes of this study. The number of years in practice was indirectly related to the number of respondents. As the years of practice increased, the number of female health workers decreased. The mean duration of practice was 11.7 ± 7.8years standard deviation and the median duration of practice was 10 years.

4.2: Reproductive and Sexual History of Respondents

Table 4: Reproductive and sexual history of female Health Workers in Abia state

Variable	Frequency (n=376)	Percent (%)
Age at marriage (year)		
< 19	48	12.8
≥ 19	251	66.8
Not applicable (single)	77	20.5
Age at first sexual intercorse (year)		
< 19	82	21.8
≥ 19	288	76.6
Not applicable	6	1.6
Parity		
< 5	231	61.4
≥ 5	145	38.6
Number of life time partners		
Single	284	75.5
Multiple	92	24.5
History of STI		
Yes	87	23.1
No	289	76.9

Table 4 shows the two thirds (66%) of the respondents got married by 19 years or older.

Majority of the respondents had first sexual intercourse at 19 years and older while few 6(1.6%) of them were sexually inactive or refused to disclose when they had their first exposure.

For parity, the multiparous respondents with greater than 4 children constituted 145(38.6%) of the respondents.

Majority of the respondents 284(75.5%) agreed to having single or no sexual partners in their lifetime while the rest of them admitted having had multiple sexual partners.

The greater proportion of the respondents(76.9%) in this study had no history of sexually transmitted of infections.

4.3 Awareness of Cervical Cancer, Pap Smear and HPV Vaccine

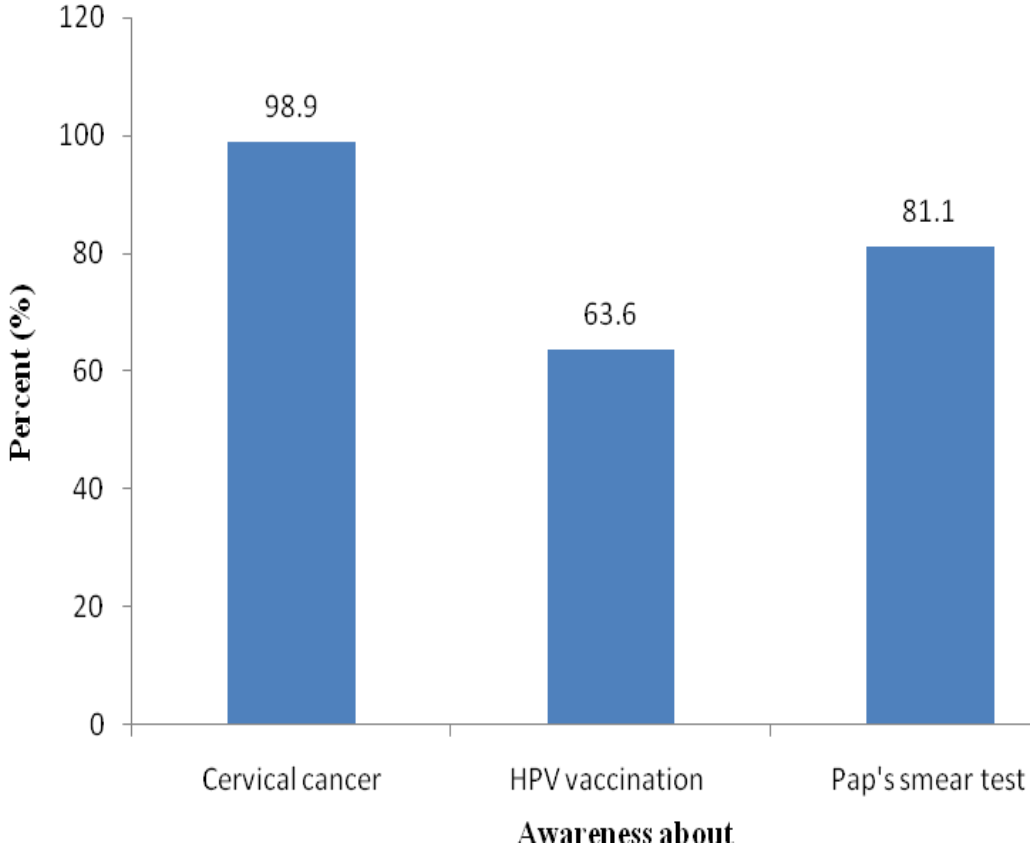


Figure 2: Awareness about cervical cancer, HPV vaccination and Pap smear test

Majority 372(98.9%) of the respondents were aware of cervical cancer, 305(81.1%) were aware of Pap smear and 240(63.6%) were aware of HPV vaccination.

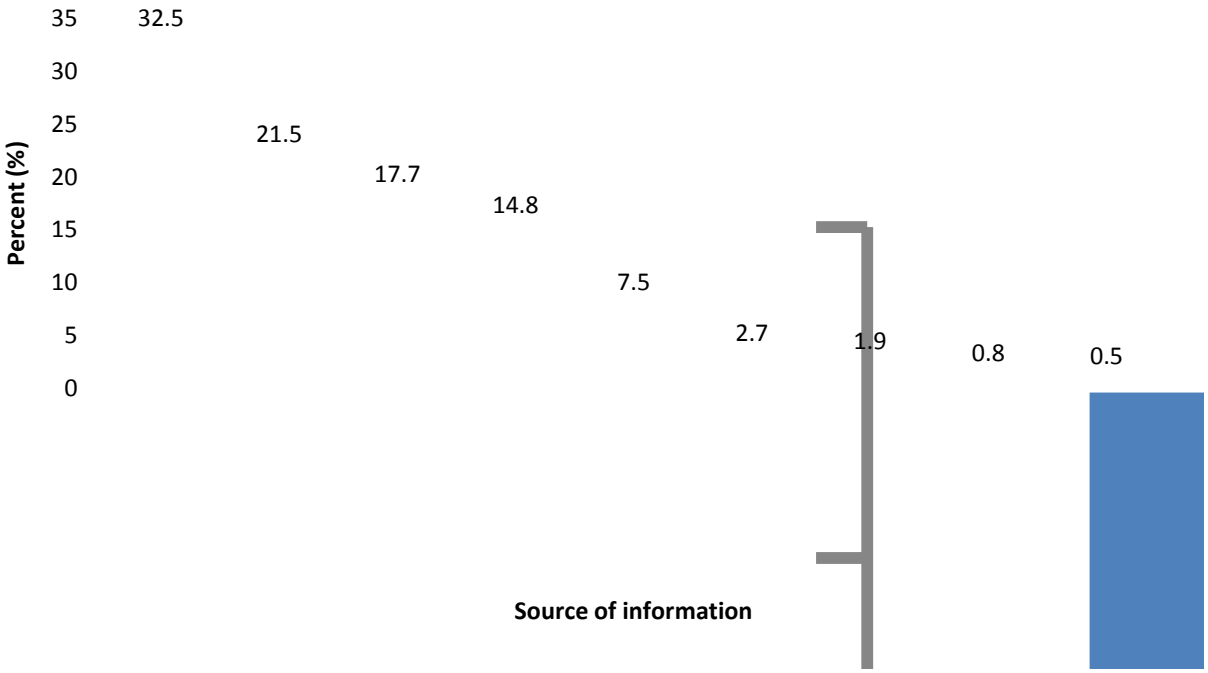


Figure 3: Source of information about cervical cancer by Female Health Workers in Abia state

Figure 3 shows that the four major sources of information about cervical cancer were 32.5%from Seminars/Workshops, 21.5% from Health care providers, Mass media accounting for 17.7% and 14.8% from school. Internet, friends, IEC materials, family member and others provided information for fewer respondents in that order.

4.4 Knowledge and Perception of Cervical Cancer among Female Health Workers

Table 5: Knowledge and Perception scores on cervical cancer among Female Health Workers in Abia state

Knowledge and perception scores	Frequency (n=376)	Percent (%)
Knowledge score (%)		
Good	116	30.9
Fair	237	63.0
Poor	23	6.1
Mean knowledge score	**66.8 ± 11.9**	
Perception score (%)		
Good	242	64.4
Fair	116	30.9
Poor	18	4.8
Mean perception score	**76.0 ± 14.6**	

Good ≥ 75%, Fair 50-74%, Poor <50%

Table 5 above shows that 30.9% of the female health workers had scores above 75% about cervical cancer and most of them (63%) of them had knowledge scores that was between 50-74% whereas only 6.1% of them had poor knowledge having scored below 50%.

Concerning risk perception, 64.4% of respondents in this study had good risk perception, 30.9% had fair risk perception and 4.8% had poor risk perception respectively.

The mean knowledge score was 66.8±11.9 while the mean perception score in this study was 76.0±14.6.

4.5 Practice of Cervical Cancer Prevention Services

Table 6: Practice towards cervical cancer prevention services

Variables	Frequency	Percent (%)
Have eligible daughter for HPV vaccination		
Yes	234	62.2
No	142	37.8
Any adolescent daughter taken HPV vaccination (n=234)		
Yes	17	7.3
No	217	92.7
Ever done a Pap smear		
Yes	44	11.7
No	332	88.3
Number of times Pap smear was done (n=44)		
1	33	75.0
≥ 2	11	25.0
Ever recommended cervical cancer screening for any woman		
Yes	143	38.0
No	233	62.0
Ever recommended HPV vaccination for anyone		
Yes	65	17.3
No	311	82.7

Table 6 shows that 62.2% of the respondents have daughters who are 9 years and above who would have been eligible at one time or another to receive HPV vaccination. Out of those with eligible daughters, 17(7.3%) of them had daughters who had received HPV vaccination and 44(11.7%) of the female health workers had ever done a pap smear. Amongst those who had ever done a pap's smear only 25%of them had done the screening twice or more

Concerning the practice of recommending preventive services, 143(38%) of the female health workers have recommended cervical cancer screening for other women whereas 65(17.3%) of them remembered recommending HPV vaccination for anyone whereas 65(17.3%) had ever recommended HPV vaccination for anyone.

Table 7: Reasons for accepting or refusing Cervical Cancer Prevention Services among Female Health workers in Abia state

Variables	Frequency	Percent (%)
Reasons for adolescent daughter not taking HPV vaccination (n=217)		
It is painful	2	0.9
It is embarrassing	8	3.7
Daughter is healthy, no reason for it	22	10.1
Scared of a negative outcome	21	9.7
Lack of spousal consent	11	5.1
It is expensive	4	1.8
Unaware of where to do take the vaccination	100	46.1
Others including promotion of promiscuity	10	4.61
Reasons for doing Pap smear (n=44)		
Personal awareness	15	34.1
Doctor's request	15	34.1
Part of general/routine screening	14	31.8
Because of some symptoms	5	11.4
Free/subsidized test available	4	9.1
Reasons for not having done Pap smear (n=332)		
It is painful	15	4.5
It is embarrassing	31	9.3
I am healthy, no need for it	99	29.8
Scared of a negative outcome	30	9.0
Lack of spousal consent	7	2.1
It is expensive	137	41.3
Unaware of where to do take the test	134	40.4
Others	10	3.0

Table 7 above shows: The most common reason why the daughters were not given HPV vaccination were unawareness of where to get the vaccine (46.1%), 10.1% felt their daughters were healthy not having any need for the vaccination, 9.7% were scared of negative outcome and another 4.6% had the erroneous idea that HPV vaccination could promote sexual promiscuity.

The most common reasons given for having assessed pap's smear were personal awareness and doctor's request by 34.1% respectively followed by routine screening by 31.8% of respondents.

The most common reasons for not doing pap smear was cost by 41.3% of them followed closely by unawareness of where to get the screening 40.4% while feeling healthy and not seeing the need for the screening was the reason for 29.8% of the respondents.

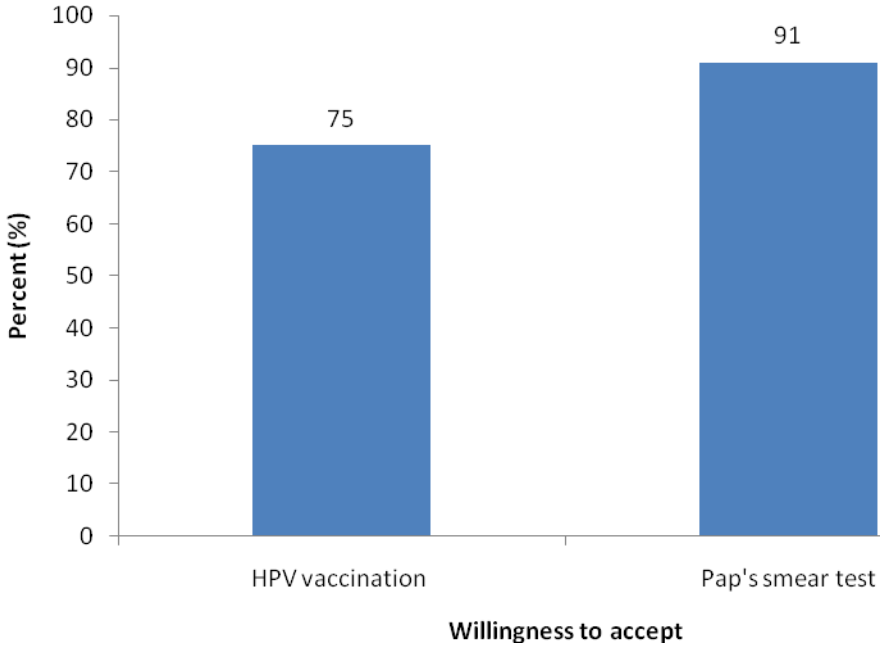


Figure 4: Willingness to accept HPV vaccination and Pap smear by Female Health Workers in Abia state

Figure 4 shows that whereas 91% of the respondents were willing to accept a pap smear in the future whereas 75% of the participants in this study were willing to accept HPV vaccination for their adolescent daughters in the future.

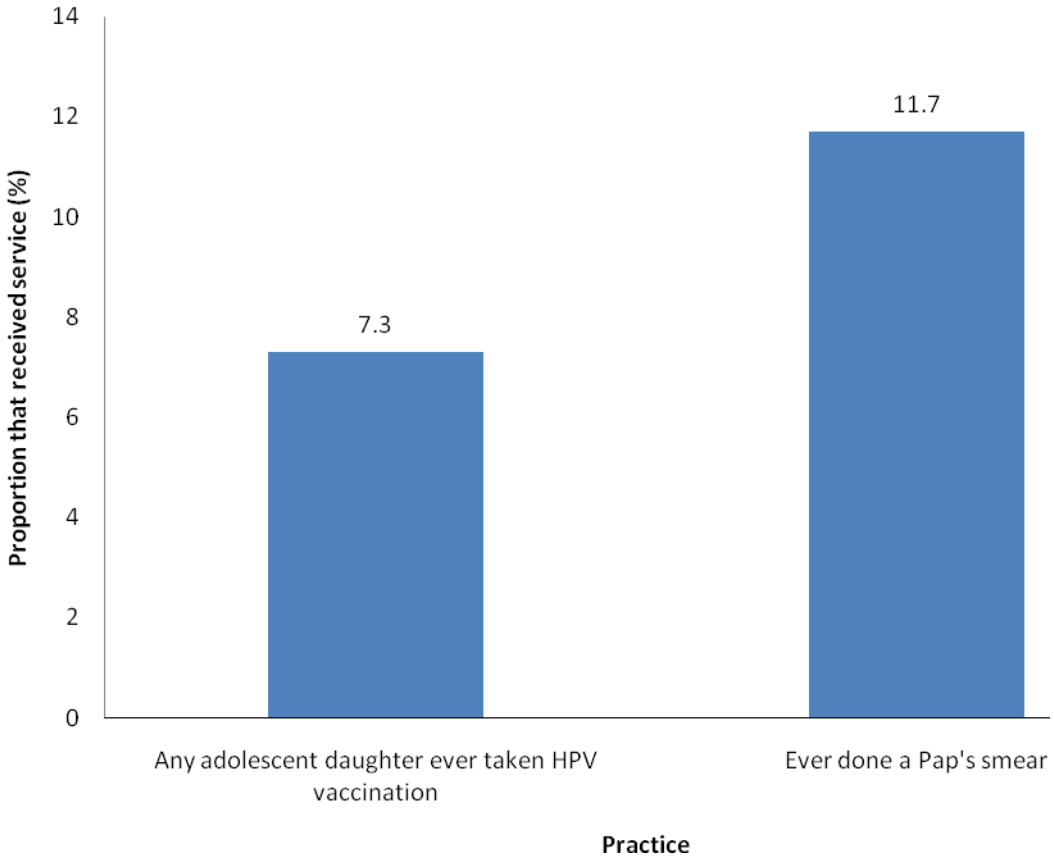


Figure 5: Uptake of cervical cancer prevention services by the female health workers in Abia State

Figure 5 shows that 11.7% of the respondents in this study had ever done a pap smear while only 7.3% of the respondents had adolescent daughters who had ever received HPV vaccination.

4.6 Factors Associated with Uptake of Cervical Cancer Prevention Services

Table 8: Associations between HPV vaccination and socio-demographic characteristics among Female Health Workers in Abia state

Variable	Daughter vaccinated (%)			Odds ratio	95% CI		p-value
	Yes n = 17	No n = 217	Total n = 234		Lower	Upper	
Age (year)							
20 – 29	2 (6.9)	27 (93.1)	29	1			
30 – 39	5 (6.3)	74 (93.7)	79	0.91	0.17	4.86	0.915
40 – 49	7 (8.1)	79 (91.9)	86	1.20	0.24	5.97	0.829
≥ 50	3 (7.5)	37 (92.5)	40	1.09	0.18	6.81	0.924
Marital status							
Married	14 (7.3)	179 (92.7)	193	2.19	0.29	16.74	0.446
Single	1 (3.4)	28 (96.6)	29	1			
Divorced/Separated	1 (16.7)	5 (83.3)	6	5.60	0.35	89.53	0.204
Widowed	1 (16.7)	5 (83.3)	6	5.60	0.35	89.53	0.204
Type of marriage							
Monogamy	15 (7.6)	182 (92.4)	197	1			
Polygamy	1 (12.5)	7 (87.5)	8	1.73	0.23	13.19	0.614
Not applicable (single)	*1 (3.4)*	*28 (96.6)*	*29*				
Ethnicity							
Igbo	17 (7.5)	209 (92.5)	226	1.42	0.09	21.83	0.421
Others	0 (0)	8 (100)	8	1			
Religion							
Pentecostal	12 (9.5)	114 (90.5)	126	2.47	0.54	11.32	0.233
Catholic	2 (4.1)	47 (95.9)	49	1			
Protestants	3 (6.0)	47 (94.0)	50	1.50	0.24	9.22	0.663
Others	0 (0)	9 (100)	9	1.00	0.05	19.63	0.537
Average monthly income (₦)							
< 18,000 (Low)	2 (22.2)	7 (77.8)	9	1			
18,000 – 100,000 (Middle)	9 (6.1)	138 (93.9)	147	0.23	0.04	1.16	0.067
> 100,000 (High)	6 (7.7)	72 (92.3)	78	0.29	0.05	1.49	0.153

* Statistically significant

Table 8 shows that there was no statistically significant association between any of the sociodemgraphic factors and actual uptake of HPV vaccination with p value at at .05.

Table 9: Associations between HPV vaccination and professional cadre/duration of practice among female Health Workers in Abia state

Variable	Daughter vaccinated (%)			Odds ratio	95% CI		p-value
	Yes	No	Total		Lower	Upper	
	n = 17	n = 217	n = 234				
Type of facility							
Primary	3 (3.6)	80 (96.4)	83	1.24	0.13	11.98	0.856
Secondary	2 (5.3)	36 (94.7)	38	1.83	0.16	20.44	0.623
Tertiary	11 (13.9)	68 (86.1)	79	5.34	0.68	41.87	0.082
Private	1 (2.9)	33 (97.1)	34	1			
Professional cadre							
Medical doctor	2 (11.8)	15 (88.2)	17	1.95	0.36	10.56	0.444
Dentist	0 (0)	2 (100)	2	-	-	-	0.712
Optometrist	0 (0)	3 (100)	3	1.91	0.13	28.60	0.651
Pharmacist	3 (27.3)	8 (72.7)	11	5.47	1.16	25.87	0.024*
Nurses	6 (5.7)	99 (94.3)	105	0.88	0.26	2.99	0.845
Laboratory scientist	1 (6.3)	15 (93.8)	16	-	-	-	-
CHEW	5 (6.4)	73 (93.6)	78	1			
Dietician/Nutritionist	0 (0)	2 (100)	2	-	-	-	0.712
Duration of practice (year)							
1 – 5	3 (6.0)	47 (94.0)	50	1			
6 – 10	4 (6.7)	56 (93.3)	60	1.12	0.24	5.18	0.887
11 – 15	3 (6.5)	43 (93.5)	46	1.09	0.21	5.61	0.916
16 – 20	6 (14.0)	37 (86.0)	43	2.54	0.60	10.68	0.196
> 20	1 (2.9)	34 (97.1)	35	0.46	0.05	4.48	0.501

* Statistically significant

Table 9 shows a bivariate analysis with Chi square test done to test for association between the Type of facility, cadre of FHW, Duration of practice and HPV vaccination uptake and only Pharmacist cadre of was significant: The pharmacists were 5 times more likely to give HPV vaccination to their eligible daughters compared with CHEWS (P value 0.024; OR 5.47; 95% CI: 1.16-25.87)

Table 10: Associations between HPV vaccination and reproductive/sexual history among Female Health Workers in Abia state

Variable	Daughter vaccinated (%)			Odds ratio	95% CI		p-value
	Yes	No	Total		Lower	Upper	
	n=17	n=217	n=234				
Age at marriage (year)							
< 19	2 (6.1)	31 (93.9)	33	1			
≥ 19	14 (8.1)	158 (91.9)	172	1.42	0.31	6.41	0.653
Not applicable (single)	*1 (3.4)*	*28 (96.6)*	*29*				
Age at coitarche (year)							
< 19	3 (6.3)	45 (93.8)	48	1			
≥ 19	14 (7.7)	168 (92.3)	182	1.25	0.35	4.49	0.734
Not applicable	0 (0)	4 (100)	4				
Parity							
< 5	12 (9.4)	115 (90.6)	127	1			
≥ 5	5 (4.7)	102 (95.3)	107	0.47	0.16	1.37	0.161
Number of life time partners							
Single	12 (6.6)	171 (93.4)	183	1			
Multiple	5 (9.8)	46 (90.2)	51	1.55	0.52	4.58	0.430
History of STI							
Yes	4 (6.8)	5 (93.2)	59	9.97	2.55	38.90	< 0.001*
No	13 (7.4)	162 (92.6)	183	1			

* Statistically significant

Table 10 shows a bivariate analysis with Chi square test done to test for association between sexual and reproductive history and HPV vaccination uptake and only history of STI was significant Respondents who had previous history of STI were 10 times more likely to have given their daughters the HPV vaccine than those who did not have STI. (P value < 0.001; OR 9.97; 95% CI: 2.55-38.90).

Table 11: Associations between HPV vaccination and recommendation of cervical screening and HPV vaccination to others

Variable	Daughter vaccinated (%)			Odds ratio	95% CI		p-value
	Yes	No	Total		Lower	Upper	
	n = 17	n = 217	n = 234				
Recommended HPV vaccination							
Yes	8 (19.5)	33 (80.5)	41	4.96	1.80	13.66	0.001*
No	9 (4.7)	184 (95.3)	193	1			
Recommended Pap's smear							
Yes	12 (12.5)	84 (87.5)	96	3.80	1.30	11.12	0.010*
No	5 (3.6)	133 (96.4)	138	1			

* Statistically significant

Table 11 shows a bivariate analysis with Chi square test done to test for association actual practice of HPV vaccination. The women who had recommended HPV vaccination and cervical cancer screening were more likely to have daughters that had received HPV vaccine. Respondents who recommended HPV vaccination were five times more likely to have daughters who had received the vaccine (P value< 0.001; OR 4.96; 95% CI: 1.80-13.36) and the FHWs who recommended Pap smear were also about four times more likely to give HPV vaccination to their daughters than those who didn't recommend. (P value< 0.010; OR 3.80; 95% CI: 1.30-11.12).

Table 12 Associations between HPV vaccination and knowledge/perception scores among Female Health Workers in Abia state

Variable	Daughter vaccinated (%)			Odds ratio	95% CI		p-value
	Yes	No	Total		Lower	Upper	
	n = 19	n = 357	n = 376				
Knowledge score							
Good	3 (4.6)	62 (95.4)	65	0.23	0.04	1.20	0.066
Fair	11 (7.2)	141 (92.8)	152	0.36	0.09	1.41	0.140
Poor	3 (17.6)	14 (82.4)	17	1			
Perception score							
Good	8 (5.2)	146 (94.8)	154	0.55	0.07	4.41	0.583
Fair	8 (11.6)	61 (88.4)	69	1.31	0.16	10.63	0.807
Poor	1 (9.1)	10 (90.9)	11	1			

* Statistically significant

Table 12 shows that there was no statistically significant association between the level of knowledge as well as perception about cervical cancer and actual uptake of HPV vaccination.

Table 13: Association between socio-demographic characteristics and Pap smear uptake among Female Health workers in Abia state

Variable	Pap's smear uptake (%)			Odds ratio	95% CI		p-value
	Yes n = 44	No n = 332	Total n = 376		Lower	Upper	
Age (year)							
20 – 29	10 (12.7)	69 (87.3)	79	1			
30 – 39	10 (7.4)	125 (92.6)	135	0.55	0.22	1.38	0.203
40 – 49	17 (15.2)	95 (84.8)	112	1.23	0.54	2.85	0.622
≥ 50	7 (14.0)	43 (86.0)	50	1.12	0.40	3.14	0.826
Marital status							
Married	35 (12.3)	249 (87.7)	284	1.66	0.68	4.09	0.266
Single	6 (7.8)	71 (92.2)	77	1			
Divorced/Separated	1 (11.1)	8 (88.9)	9	1.48	0.18	12.42	0.730
Widowed	2 (33.3)	4 (66.7)	6	5.92	1.02	34.28	0.041*
Type of marriage							
Monogamy	37 (12.8)	251 (87.2)	288	1.47	0.20	10.78	0.714
Polygamy	1 (9.1)	10 (90.9)	11	1			
Not applicable (single)	6 (7.8)	71 (92.2)	77				
Ethnicity							
Igbo	40 (11.1)	319 (88.9)	359	1			
Others	4 (23.5)	13 (76.5)	17	2.45	0.79	7.64	0.121
Religion							
Pentecostal	22 (10.8)	182 (89.2)	204	1			
Catholic	9 (11.0)	73 (89.0)	82	1.02	0.45	2.31	0.962
Protestants	9 (12.0)	66 (88.0)	75	1.13	0.50	2.56	0.775
Others	4 (26.7)	11 (73.3)	15	3.01	0.91	9.89	0.066
Average monthly income (₦)							
< 18,000 (Low)	0 (0)	14 (100)	14	1			
18,000 – 100,000 (Middle)	24 (9.8)	220 (90.2)	244	3.22	0.20	50.67	0.218
> 100,000 (High)	20 (16.9)	98 (83.1)	118	6.04	0.38	95.79	0.094

* Statistically significant

Table 13 shows that amongst the socio demographic variables of Age, Marital status, Type of marriage, Ethnicity and Religion. The only significant factor here was the marital status of being divorced or separated. (P value 0.041; OR 5.92;CI I.02-34.28) FHWs who were divorced or separated were 6 times more likely to have done Pap smear test than those who were single.

Table 14: Associations between professional cadre/duration of practice and Pap smear uptake among Female Health Workers in Abia state

Variable	Pap smear uptake (%)			Odds ratio	95% CI		p-value
	Yes n=44	No n=332	Total n=376		Lower	Upper	
Type of facility							
Primary	10 (7.1)	130 (92.9)	140	1.36	0.36	5.08	0.650
Secondary	9 (15.0)	51 (85.0)	60	3.12	0.81	12.03	0.088
Tertiary	22 (18.3)	98 (81.7)	120	3.97	1.15	13.72	0.022*
Private	3 (5.4)	53 (94.6)	56	1			
Professional cadre							
Medical doctor	7 (24.1)	22 (75.9)	29	2.94	1.07	8.08	0.033*
Dentist	1 (25.0)	3 (75.0)	4	3.08	0.40	23.69	0.322
Optometrist	0 (0)	4 (100)	4	-	-	-	-
Pharmacist	1 (6.3)	15 (93.8)	16	0.62	0.08	4.74	0.648
Nurses	19 (11.9)	141 (88.1)	160	1.24	0.59	2.62	0.566
Laboratory scientist	3 (11.1)	24 (88.9)	27	1.15	0.31	4.27	0.833
CHEW	13 (9.8)	120 (90.2)	133	1			
Dietician/Nutritionist	0 (0)	3 (100)	3	1.28	0.09	17.63	0.569
Duration of practice (year)							
1 – 5	9 (8.9)	92 (91.1)	101	1			
6 – 10	5 (5.2)	92 (94.8)	97	0.56	0.18	1.71	0.303
11 – 15	13 (16.0)	68 (84.0)	81	1.95	0.79	4.81	0.142
16 – 20	10 (18.9)	43 (81.1)	53	2.38	0.91	6.23	0.074
> 20	7 (15.9)	37 (84.1)	44	1.93	0.68	5.52	0.216

* Statistically significant

Table 14 shows the two statistically significant factors as FHWs practicing at Tertiary level (P value 0.022; OR 3.97; 95% CI: 1.15-13.72). FHWs from tertiary facility were 4 times more likely to do Pap smear than those in Private facilities and Doctors professional cadre (P value 0.033; OR 2.94; 95% CI: 1.07-8.08). Female doctors were 3 times more likely do Pap smear than Optometrists.

Table 15: Associations between Pap smear uptake and reproductive/sexual history among female Health workers in Abia state

Variables	Pap smear uptake (%)			Odd ratio	95% CI		p-value
	Yes n=44	No n=332	Total n=376		Lower	Upper	
Age at marriage (year)							
< 19	10 (20.8)	38 (79.2)	48	2.10	0.95	4.63	0.065
≥ 19	28 (11.2)	223 (88.8)	251	1			
Not applicable (single)	6 (7.8)	71 (92.2)	77				
Age at coitarche (year)							
< 19	10 (12.2)	72 (87.8)	82	1.04	0.49	2.19	0.923
≥ 19	34 (11.8)	254 (88.2)	288	1			
Not applicable	*0 (0)*	*6 (100)*	*6*				
Parity							
< 5	25 (10.8)	206 (89.2)	231	1			
≥ 5	19 (13.1)	126 (86.9)	145	1.24	0.66	2.34	0.503
Number of life time partners							
Single	29 (10.2)	255 (89.8)	284	1			
Multiple	15 (16.3)	77 (83.7)	92	1.71	0.88	3.35	0.114
History of STI							
Yes	13 (14.9)	74 (85.1)	87	1.46	0.73	2.93	0.283
No	31 (10.7)	258 (89.3)	289	1			

* Statistically significant

Table 15 shows that none of the reproductive and sexual history factors had a statistically significant relationship with the practice of Pap smear screening.

Table 16: Associations between Pap smear uptake and recommendation of cervical screening and HPV vaccination to others among Female Health Workers in Abia state

Variable	Pap smear uptake (%)			Odds ratio	95% CI		p-value
	Yes n=44	No n=332	Total n=376		Lower	Upper	
Recommended HPV vaccination							
Yes	17 (26.2)	48 (73.8)	65	3.73	1.90	7.32	< 0.001*
No	27 (8.7)	284 (91.3)	311	1			
Recommended Pap's smear							
Yes	32 (22.4)	111 (77.6)	143	5.31	2.64	10.69	< 0.001*
No	12 (5.2)	221 (94.8)	233	1			

*Statistically significant

Table 16 shows that the practice of recommending HPV vaccination (P value <0.001; OR 3.73; 95% CI: 1.90-7.32) and recommending Pap smear screening for others (P value <0.001; OR 5.31; 95% CI: 2.64-10.69), were statistically significant with actual uptake of Pap smear screening.

Table 17: Associations between Pap smear uptake and knowledge/perception scores among Female Health Workers in Abia state

Variable	Pap smear uptake (%)			Odds ratio	95% CI		p-value
	Yes	No	Total		Lower	Upper	
	n = 44	n = 332	n = 376				
Knowledge score							
Good	13 (11.2)	103 (88.8)	116	1.33	0.29	6.12	0.723
Fair	29 (12.2)	208 (87.8)	237	1.46	0.34	6.37	0.617
Poor	2 (8.7)	21 (91.3)	23	1			
Perception score							
Good	37 (15.3)	205 (84.7)	242	3.07	0.42	22.47	0.259
Fair	6 (5.2)	110 (94.8)	116	0.93	0.11	7.76	0.946
Poor	1 (5.6)	17 (94.4)	18	1			

* Statistically significant

Table 17: There was no statistically significant association between knowledge and perception scores and actual uptake of Pap smear screening.

4.7 Multivariable Analysis of Factors Associated With Uptake of Cervical Cancer Prevention Services

Table 18: Simple logistic regression and uptake of HPV vaccination on the associated factors among Female Health Workers in Abia state

Variable	b	SE	Wald statistic	Crude Odds ratio	95% CI		p-value
					Lower	Upper	
Income (₦)	0.00	0.00	1.43	1.00	1.00	1.00	0.232
Type of facility (Tertiary/Others)	1.39	0.53	6.93	4.02	1.43	11.31	0.008*
Professional cadre (Pharmacist/Others)	1.72	0.73	5.55	5.60	1.34	23.46	0.018*
History of STI (Yes/No)	-0.10	0.59	0.03	0.91	0.28	2.90	0.868
Recommended HPV vaccination (Yes/No)	1.60	0.52	9.43	4.96	1.78	13.77	0.002*

*Statistically significant; b = regression coefficient; SE = standard error

Table 18 shows that when simple logistic regression was done, three factors were statistically significant. The type of facility (P value <0.008; OR 4.02; 95% CI: 1.43-11.31), FHWs in tertiary facility were 4 times more likely to have daughters who had received the HPV vaccination, Professional cadre (P value <0.018; OR 5.60; 95% CI: 1.34-23.46). FHWs who were Pharmacists were almost 6 times more likely to have daughters that had received the HPV vaccination while recommending HPV vaccination (P value <0.002; OR 4.96; 95% CI: 1.78-13.77), FHWs who recommended HPV vaccination were five times more likely to have daughters who had received HPV vaccine.

Table 19: Predictors of uptake of HPV vaccination among Female Health workers in Abia state

Variable	b	SE	Wald statistic	Adjusted Odds ratio	95% CI		p-value
					Lower	Upper	
Type of facility (Tertiary/Others)	1.18	0.55	4.59	3.24	1.11	9.51	0.032*
Professional cadre (Pharmacist/Others)	1.72	0.82	4.43	5.60	1.13	27.84	0.035*
Recommended HPV vaccination (Yes/No)	1.49	0.55	7.31	4.44	1.51	13.07	0.007*

*Statistically significant; b = regression coefficient; SE = standard error

Table 19 shows that with further controlling for cofounders with all the significant variables in the model at once that the actual predictors of HPV vaccination uptake as: Type of facilities (P value <0.032; AOR 3.24; 95% CI: 1.11-9.51). Professional cadre (P value 0.035; AOR 5.60; 95% CI: 1.13-27.84) and Recommending HPV vaccination for others ((P value 0.007; AOR 4.44; 95% CI: 1.51-13.07).

Table 20: Simple logistic regression of Pap smear uptake on the associated factors among Female Health Workers in Abia state

Variable	b	SE	Wald statistic	Crude Odds ratio	95% CI		p-value
					Lower	Upper	
Marital status (Widowed/Others)	1.36	0.83	2.39	3.91	0.69	01.97	0.122
Type of facility (Tertiary/Others)	0.87	0.33	7.19	2.39	1.26	4.51	0.007*
Professional cadre (Doctor/Others)	0.98	0.47	4.40	2.67	1.07	6.67	0.036*
Recommended Pap's smear (Yes/No)	1.07	0.36	21.75	5.31	2.63	10.71	< 0.001*

*Statistically significant; b = regression coefficient; SE = standard error

Table 20: Simple logistic regression, the factors that were statistically significant were Type of facility: (P value 0.007; OR 2.39; 95% CI: 1.26- 4.51). The respondents in the tertiary health facility were two times more likely to receive pap smear that the other FHWs in other kinds of facilities. Professional cadre of doctors:(P value 0.036; OR 2.67; 95% CI: 1.07-6.67), showing that the female doctors were three times more likely to have taken the pap smear screening than the other cadres of FHWs and lastly Recommending pap smear for others: (P value 0.035; OR 5.60; 95% CI: 1.13-27.84), the female health workers that recommended pap smear for others were five times more likely to have taken up the pap smear themselves.

Table 21: Predictors of Pap smear uptake on the associated factors among Female Health workers in Abia state

Variable	b	SE	Wald statistic	Adjusted Odds ratio	95% CI		p-value
					Lower	Upper	
Type of facility (Tertiary/Others)	0.70	0.35	4.05	2.01	1.02	3.97	0.044*
Professional cadre (Doctor/Others)	0.40	0.51	0.61	1.49	0.55	4.03	0.435
Recommended Pap's smear (Yes/No)	1.59	0.36	19.04	4.88	2.39	9.94	< 0.001*

*Statistically significant; b = regression coefficient; SE = standard error

Table 21 shows that with further controlling for cofounders with all the significant variables in the model at once that the actual predictors Pap smear screening uptake as Type of facility: (P value 0.044; OR 2.01; 95% CI: 1.02-3.97) and Having recommended pap smear for others (P value <0.001; AOR 4.88; 95% CI: 2.39-9.94).

CHAPTER FIVE

DISCUSSIONS

Cervical cancer is preventable. Effective primary and secondary modes of prevention are available to prevent contracting the causative agent and screening to detect the pre-cancerous stages of the disease early enough when treatment can be beneficial.

This study explored the awareness, knowledge, practice and determinants of cervical cancer prevention services uptake amongst female health workers in Abia state and the following were revealed that the awareness and knowledge level were appreciably high but not followed by a commensurate level of uptake of the services.98.9% of the participants are aware of cervical cancer. This finding is similar to the study conducted among nurses in Lagos state with 99% awareness and 97% in a study Afolabi et al in South West Nigeria and Lagos by Awodele et al.[127,128] and 94% found in Maiduguri.[129] and 90.57% in South South Nigeria.[27] Awareness of screening services in this study was 81.1% and this is similar to the findings in Ilorin with 87% and 85.3% in South South Nigeria.[27,129] The finding in Abuja was higher though at 93.5%[130] while lower levels of awareness was found in studies done in Zaria and Benin with 69.8% and 64% respectively.[25,131] Awareness of HPV vaccination was 63.6% in this study. This is very similar to the findings by Ugwu et al in Enugu state,[20] however a study done in Cameroon among FHWs revealed a low awareness concerning HPV vaccination except amongst the gynecologists involved in the study.[61]

The awareness of cervical cancer, Pap smear and HPV vaccination among health workers in this study is high. This is as expected because they are in contact with the facilities and their training as health workers has placed them at advantage of being more aware of the diseases and prevention services more than women in the general population. This finding on the contrary did

not translate to optimal utilization of the services among the respondents in this study. The findings might be attributed to socio-cultural predispositions and the general low utilization of preventive services in the country and the study setting. Cost, vaccine efficacy and non-awareness of where to obtain these services can also be a reason as cited by some studies.[21,113,116] This implies that the uptake amongst the less informed members of the society will be much lower and cervical cancer incidence still high when it could have been reduced by improved HPV vaccination uptake. The high level of awareness and acceptability of HPV vaccination as seen in this study can be leveraged on for successful implementation of HPV vaccination programs. In assessing the knowledge of cervical cancer, standardized questions covering etiology, risk factors clinical features, preventive measures and treatment were asked and the mean knowledge score obtained from this study was 66.8 ± 11.9. This was similar to mean knowledge score of 63.4% ± 8.9% obtained in a Kuwaitian study.[23] but it was however lower than what was obtained from a study done in Sokoto that had a Knowledge score of 82.2 ± 13.8.[42] Majority of the participants 77.4% recognized HPV infection as the primary cause of cervical cancer, the Sokoto study found a higher value of 85.5%,[42] while 82.4% said that having multiple sexual partners was a risk factor and this is similar to the findings from Sokoto too that was 87.7%, while 23.1% felt it was seen only in the elderly against 25% in the same study as above. Similar levels of knowledge about risk factors, clinical features and prevention methods were gotten with the study done among female health workers in South West Nigeria by Afolabi et al.[127] The high knowledge found in this study is expected given the kind of training the health workers have undergone as well as their gender because cervical cancer is a gender specific malignancy.

The Pap smear uptake in this study was 11.7% and can be said to be low. This is similar to studies done among FHWs in Ghana of 11.6%,[127] Sokoto, of 10%,[42] Higher levels were obtained in some other studies: 19% was found in a Study done in Ugandan,[89] 18% by Dim et al in Enugu,[26] 14.1% in Ibadan and another study done by Ugwu et al in Enugu[20,25] Turkey 13.8%.[132] However lower outcomes were observed in other parts of the country done among health workers with Udigwe from South East Nigeria finding 5.7% uptake[40] and Sokoto by Nwobodo and Malami having 4.4%.[90]

However some other studies from SSA and India have higher values than Nigerian studies and the values are even much higher from Western countries.[85,86,87] The level of uptake from this study is lower than expected because it is not commensurate with the high level of knowledge observed in the study. However the relationship between knowledge and practice is not always predictable. The reasons for the low uptake in this study include reasons like fear of a negative result, lack of awareness of where to obtain the test, and cost to mention but a few. The wide disparity with studies from Western nations can be due to the existence of population-based screening programs, women empowerment, health insurance programs and use of recall systems in those settings. When the FHWs who are seen as role models for health care practice and who are supposed to be at the frontline of recommending these services to others are not using the services, it implies that the uptake in the general population will be much lower and the number of preventable cervical cancers will still be high. This calls for a lot to be done to improve this current level in the study setting such as making policies like compulsory pre-employment screening for the FHWs, increasing sites for screening and making the services more affordable.

HPV vaccination uptake in this study is low at 7.3%, this differs from an uptake level of 49.2% obtained in a tertiary health facility in SE Nigeria. The higher values from this Enugu study was

most probably due to the involvement of the female physicians here in a community awareness campaign for HPV vaccination which would have provided the sensitization and opportunity for them to get their daughters vaccinated. Few studies have assessed uptake of HPV vaccination in Nigeria. A study conducted among Turkish nurses revealed that none of them had ever received HPV vaccination.[132] Studies in developing countries with specially designed delivery programs achieved enviable vaccination coverage levels between 70% and above 90%.[76,77,79] HPV vaccination as seen in this study is very low. The reason for the recorded level here could be sub optimal awareness about the vaccination, non-availability of the vaccine at an affordable rate, erroneous beliefs that HPV vaccination promotes promiscuity and its' non- inclusion in the routine immunization schedule. This implies that a crucial primary preventive strategy is grossly underutilized and control of cervical cancer in this area may not achieve the desired results. This finding further calls for more enlightenment and education of the health workers who will play a major role in enlightening the public on the availability and need for HPV vaccination.

The factors associated with HPV vaccination among the daughters of the FHWs in this study were the type of facility, belonging to the pharmacist cadre and having recommended vaccination for others. The finding of higher vaccine uptake among respondents from tertiary health than in daughters of FHWs from Secondary, Primary or Private Facilities. This finding is as expected because higher cadres of health care workers who are also presumably more knowledgeable were found in the tertiary health level. Professional cadre where the pharmacists had given their daughters the vaccine more than the other cadres of FHWs as found in this study is also expected because currently the vaccines are currently being promoted by the pharmaceutical companies and vaccinations given in some private facilities which suggests that the pharmacists are bound to be better informed of where to get the vaccines and at the most

affordable price than other cadres of health workers in this study. Recommending HPV vaccination as a predictor of uptake in this study is as expected. Though one cannot always say which action comes first whether it is the recommendation before the actual practice. This finding was supported by the reason proffered by the investigators in Enugu study[20] who recorded a high level of HPV vaccination following their participation in an outreach programme in the community where they went recommending HPV vaccine to the community , this is also corroborated by the finding in a study done in Tanzania.[133] Turkish nurses who were not willing to recommend HPV vaccination to their clients were found not have received the vaccinations themselves.[132] The determinants of HPV vaccination as seen from other studies included believing that the vaccine was effective, a physician recommending it, likely HPV infection, having health insurance, older age, receipt of childhood vaccines, a higher vaccine related knowledge, more healthcare utilization, having a healthcare provider as a source of information and positive vaccine attitude.[134,135,136]However more studies have been carried out on determinants of willingness to accept HPV vaccine. This implies that the FHWs in the tertiary institutions and female pharmacists should be targeted and used to propagate the initial sensitization that would usher in a successful vaccine delivery program. The high willingness to accept vaccine for daughters and recommend vaccines for others as was found in this study can also be leveraged on for implementation of HPV vaccination programs.

The factors associated with Pap smear uptake in this study were working in a tertiary health facility and having recommended Pap smear for others. The finding of higher uptake in tertiary health care workers is as expected because they are presumably more knowledgeable and belong to higher cadres and the facility for screening is available in their hospital. They are also in a more academic environment were frequent medical trainings and seminars are held. The practice

of higher uptake predicted by having recommended same to others is not surprising. A study in Uganda revealed that recommendation by a health worker and knowing where screening services were offered as predictors of service uptake.[108] This was corroborated by a Jamaican study where recommendation by a health provider and frequent interphase with health care provider were associated with higher pap smear uptake.[109] However in this study none of the socio-demographic factors was associated with cervical cancer screening uptake and this is similar to findings by Eke et al in SE Nigeria.[137] Another study amongst female health workers had marital status as the associated factor.[138] Though in this study marital status was associated initially with screening uptake but on further regression it was no longer significant. Some other studies revealed younger age, being married and higher academic qualification as predictors of cervical cancer screening uptake.[100,101] Another Ethiopian study identified multiple sexual partners and sexually transmitted disease, knowledge and perceived susceptibility as important predictors of cervical cancer screening service uptake.[102] Some other studies show that the use of birth control pills, early age at first sexual intercourse, number of sexual partners, and history of sexually transmitted infections were associated with improved uptake of Pap smear.[105,107]

The implication of the findings from this study is that the female health workers should be encouraged to keep recommending the use of these preventive services. A deliberate effort should be made to expand the health talks given in specialized areas of the hospital such as immunization clinics and antenatal clinics to include cervical cancer prevention services. These female health workers should continue with the enlightenment during their and interpersonal interactions with their clients as this is expected to result in a higher level of utilization by these prevention services and finally improve the control of cervical cancer.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

The knowledge of cervical cancer prevention services among the participants in this study was fair with a knowledge score of 66.8 ± 11.9%. The Pap smear uptake among female health workers in this study was low at 11.7%. The uptake of HPV vaccine amongst the adolescent daughters of the FHW was also low at 7.3%.

The predictors of HPV vaccination uptake amongst the adolescent daughters of the female health workers was type of health facility, Professional cadre of being a Pharmacist and recommendation of HPV vaccination for others. The predictors of Pap smear uptake are type of health facility being tertiary facility and recommendation of Pap's smear for others.

6.2 Recommendations

Despite a moderately high level of knowledge of cervical cancer prevention services, the uptake of HPV vaccination and Pap smear was low.

1. It is recommended that the female workers in the tertiary health facilities should be utilized to increase awareness and recommend these prevention services to other women in the course of their duty in the hospital and to the population at large to reduce the incidence of cervical cancer.
2. It is recommended that the female pharmacists should be utilized to increase awareness and recommend these prevention services to other women in the course of their duty in the hospital and to the population at large to reduce the incidence of cervical cancer.
3. Given the marked disparity between knowledge and actual uptake of services, the health facilities should include cervical cancer screening in the pre-employment tests done for

the female health workers to further boost their practice and encourage them to recommend same freely.

4. Further qualitative studies among relevant stakeholders such as health policy makers and pharmaceutical company directors to explore the reason for the non-availiability and high cost of the vaccination to prevent creating a demand without a commensurate improvement in the availability of the HPV vaccine
5. Advocacy visit to the office of the wife of the state Governor to include HPV vaccination in her pet projects.
6. Further research on other cervical cancer preventive services such as counselling and health education is recommended to capture the full essence of the topic of this research

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APPENDICES

APPENDIX 1

INFORMED CONSENT FORM FOR FEMALE HEALTH CARE WORKER

QUESTIONNAIRE ON DETERMINANTS OF UPTAKE OF CERVICAL CANCER PREVENTION SERVICES AMONG FEMALE HEALTH CARE WORKERS IN ABIA STATE NIGERIA

Name of Interviewer Date of interview *(dd/mm/yyyy)*

Designation of respondent

Department

Introduction: Dear respondent, this study titled "**DETERMINANTS OF UPTAKE OF CERVICAL CANCER PREVENTION SERVICES AMONG FEMALE HEALTH CARE WORKERS IN ABIA STATE NIGERIA."** is intended for a dissertation in partial fulfilment for the award of a Master's degree award for Field epidemiology from Ahmadu Bello University Zaria. The result of the study will be used to guide the development and dissemination of appropriate public health messages that will address knowledge gaps, correct misconception and improve cervical cancer prevention practices that will reduce the incidence of cervical cancer. I kindly request you to respond to the following questions to the best of your knowledge. Be assured that all your responses will be treated with utmost confidentiality. Your participation in the study will be highly appreciated, although you may decide not to participate.

Do you wish to participate? Yes [ ] No [ ]

_____	_____	_____
Witness Signature/Thumb Print	Full Name	Date

APPENDIX 2

QUESTIONNAIRE

QUESTIONNAIRE ON "DETERMINANTS OF UPTAKE OF CERVICAL CANCER PREVENTION SERVICES AMONG FEMALE HEALTH CARE WORKERS IN ABIA STATE"

SECTION 1: SOCIODEMOGRAPHIC AND ECONOMIC DATA

Please choose the correct codes or tick only the correct answers in the box provided in some instances and all the correct options where applicable.

1. Age as at last birthday: In years…….

2. Tribe: a) Ibo [ ] b) Hausa [ ] c) Yoruba [ ]d) Efik [ ] e) Others specify……

3. Highest level of education: a) No formal education [ ] b) Primary [ ] c) Secondary [ ] d) Tertiary [ ]

4. Marital status: a) Married [ ] b) Single [ ] c) Divorced [ ] d) Separated [ ] e) Widowed [ ]

5. Type of marriage: a) Monogamy [ ] b) Polygamy [ ]

6. Religion: a) Catholic [ ] b) Protestants [ ] c) Pentecostal [ ] d) Traditional [ ] e) Others (Specify)……

7. Average monthly income……..

8. Type of housing……..

9. Ownership of household appliances

a) Car [ ] b) Motorcycle [ ] c) Bicycle [ ] d) Television set [ ] e) Radio [ ] f) Cable television [ ] g) Standing fan [ ] h) Gas cooker i) Kerosene Stove [ ] j) Firewood [ ]

10. No of years in practice……..

11. Cadre of health worker a) Medical doctors [ ] b) Dentists [ ] c) Optometrists [ ]

d) Pharmacist [ ] e) Nurses [ ] f) Laboratory scientists [ ]

g) Community Health extension workers [ ]

12. Type of health care facility

a) Tertiary facility [ ] b) Secondary facility [ ] c) Primary facility [ ]

d) Private facility [ ]

SECTION 2: REPRODUCTIVE AND SEXUAL HISTORY

13. Age at marriage a) Less than 19years [ ] b) Greater than 19 years [ ]

14. Age at Coitarche (first intercourse) a) Less than 19years [ ] b) Greater than 19years [ ]

15. Parity/ No of children ……

16. No of lifetime sexual partners ……..

17. Have you had previous history of STI in the past? a) Yes [ ] b) No [ ]

SECTION 3: KNOWLEGDE OF CERVICAL CANCER SCREENING

18. Have you ever heard of cervical cancer 1. Yes[ ] 2. No [ ] 3. Don't know [ ]

19. If yes, What is your source of information about cervical cancer?

a) Mass media [ ] b) Seminars/workshop [ ] c) Friend [ ]

d) Family member [ ] e) Health care provider [ ] f) Internet [ ]

g) School [ ] h) IEC materials e.g fliers and posters i) others (Specify)……

20. Cervical cancer is communicable. 1. Yes [ ] 2. No[ ] 3. Don't know [ ]

21. Cervical cancer is primarily caused by infection with Human Papilloma virus 1. Yes [ ]

2. No [ ] 3. Don't know [ ]

22. Cervical cancer is primarily caused by repeated candida infection 1. Yes [ ] 2. No [ ]

3. Don't know [ ]

23. It may be associated with having sexual intercourse early in one's life. 1. Yes [ ] 2. No [ ]

3. Don't know [ ]

24. Cervical cancer may be associated with having multiple sexual partners 1. Yes [ ] 2. No [ ]

3. Don't know [ ]

25. Cervical cancer is associated with obesity/ overweight 1. Yes [ ] 2. No [ ]

3. Don't know [ ]

26. Smoking is a risk factor for cervical cancer 1. Yes [ ] 2. No [ ] 3. Don't know [ ]

27. Having one or no children is a known risk factor 1. Yes [ ] No [ ] 3. Don't know [ ]

28. It is only seen in elderly people. 1. Yes [ ] 2. No [ ] 3. Don't know [ ]

29. It can present with abnormal/irregular bleeding. 1. Yes 2. No [ ] 3. Don't know [ ]

30. It usually presents with symptoms early 1. Yes [ ] 2. No [ ] 3. Don't know [ ]

31. Cervical cancer can be asymptomatic 1. Yes [ ] 2. No [ ] 3. Don't know [ ]

32. Are you aware of pap's smear test? 1. Yes [ ] 2. No [ ] 3. Don't know [ ]

33. Are you aware of HPV vaccination? 1. Yes [ ] 2. No [ ] 3. Don't know [ ]

34. Are you aware that cervical cancer can be prevented? 1. Yes [ ] 2. No [ ]

3. Don't know [ ]

35. Pap smear should be done routinely every 3years 1. Yes [ ] 2. No [ ] 3. Don't know [ ]

36. HPV vaccination should be given once 1. Yes [ ] 2. No [ ] 3. Don't know [ ]

37. Are there screening methods that can prevent cervical cancer? 1. Yes [ ] 2. No [ ]

3. Don't know [ ]

38. Cervical cancer cannot be cured 1. Yes [ ] 2. No [ ] 3. Don't know [ ]

39. Cervical cancer can be cured only if detected in early stages by surgery, radiotherapy and chemotherapy? 1. Yes [ ] 2. No [ ] 3. Don't know [ ]

SECTION 4: RISKPERCEPTION TOWARDS CERVICAL CANCER

40. Do you think you are at risk of cervical cancer 1. Strongly agree 2. Agree 3. Neither agree nor disagree 4. Disagree 5. Strongly disagree

41. Do you think you should undergo screening for cervical screening 1.Strongly agree

2. Agree 3. Neither agree nor disagree 4. Disagree 5. Strongly disagree

42. Do you think that all women of child bearing age should undergo screening for cervical cancer 1. Strongly agree 2. Agree 3. Neither agree nor disagree 4. Disagree 5. Strongly disagree

43. Do you think HPV vaccination should be routinely given to all adolescent girls 1. Strongly agree 2. Agree 3. Neither agree nor disagree 4. Disagree 5. Strongly disagree

SECTION 5: PRACTICE TOWARDS CERVICAL CANCER PREVENTION SERVICES AND DETTERENTS

44. Do you have any daughter that is from 9years and above? a) Yes [ ] b) No [ ]

Has any adolescent daughter of yours taken HPV vaccination? a) Yes [ ] b) No [ ]

45. If No, What are your reasons? a) No eligible daughter [ ] b) Painful [ ] c) Embarrassing [ ] d) Healthy and see no need for it [ ] e) Scared of a negative outcome [ ] f) lack of spousal consent [ ] g) Expensive/cost [ ] g) Unaware of where to get the vaccination [ ] h) Others specify……

46. Are you willing to accept HPV vaccination for your adolescent daughter? a) Yes [ ] b) No [ ]

47. Are you willing to accept a Pap smear? a) Yes [ ] b) No [ ]

48. Have you ever done a pap's smear a) Yes [ ] b) No [ ]

49. If yes, what are your reasons for doing the pap's smear? a) Personal awareness [ ]

b) Doctors request [ ] c) Free/subsidized test available [ ]

d) Part of a general/routine screening [ ] e) because of some signs and symptoms [ ]

f) Others specify……

50. How many times have done the pap's smear?……

51. If no, what are your reasons for not having done a cervical cancer screening? a) Painful [ ]

b) Embarrassing [ ] c) Healthy and see no need for it [ ]

d) Scared of a negative outcome [ ] e) lack of spousal consent [ ]

f) Expensive/cost [ ] g) unaware of where to do the test [ ]

Others specify……

52. Have you ever done any other test for cervical cancer screening a) Yes [ ] b) No [ ]

If yes, Please specify …….

53. Have you ever recommended cervical cancer screening for any woman? a) Yes [ ] b) No [ ]

54. Have you ever recommended HPV vaccination for anyone? a) Yes [ ] b) No [ ]

55. Do you require spousal consent to do a pap smear a) Yes [ ] b) No [ ]

56. How much are you willing to pay for a pap's smear? a) Less than/<N1000 b) N1001 to N2000 c) N2001 to N3000 d) N3001 to N4000 e) N4001 to N5000 f) >/greater than N5000

57. How much are you willing to pay for HPV vaccination? a) Less than/<N1000 b) N1001 to N2000 c) N2001 to N3000 d) N3001 to N4000 e) N4001 to N5000 f) >/greater than N5000

APPENDIX 3

ETHICAL APPROVAL LETTER

GOVERNMENT OF ABIA STATE OF NIGERIA

Ministry of Health

P.M.B. 7215, Umuahia, Abia State

Our Ref: AB/MH/E&HR/1/003/15

Your Ref:.....

Epidemiology & Health Research Unit

Department of Public Health/Disease Control

Date: 30th November, 2015.

NOTICE OF FULL APPROVAL

Re: Determinants of Uptake of Cervical Cancer Prevention Services among Female Health Workers in Abia State, Nigeria.

Dr EMMA-UKAEGBU, Uloaku C.

Nigeria Field Epidemiology and Laboratory Training Programme Abuja

Application received: 26th November, 2015.

This is to inform you that the research described in the submitted protocol has been reviewed and given full approval by the Health Research Ethics Committee domiciled in the Abia State Ministry of Health.

Please note that the National Code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations connected with the conduct of your research. Also note that no changes are allowed in the research protocol without prior approval by the Ethics Committee.

Finally, the Committee reserves the right to conduct compliance visit to your research site without previous notification.

Best wishes.

Dr O. Nwokocha

Chairman, Health Research Ethics Committee.

0803 537 9453

APPENDIX 4

WORK PLAN

Task	Apr - May 2015	Jun-Aug 2015	Sept - Nov 2015	Dec 2015	Jan-Feb 2016	March-June 2016	Jul 2016	Oct 2016	Nov 2016
Proposal writing	→								
Correction of Proposal and ethical clearance		→							
Pre testing of Study instrument Recruitment and training of research assistants			→						
Data collection				→	→				
Data entry, cleaning, and analysis				→	→	→			
Discussions and Conclusion writing and Abstract writing							→		
Defence								→	→