

**DETERMINANTS OF THE UTILIZATION OF CERVICAL CANCER  
SCREENING SERVICES AMONG FEMALE PUBLIC SERVANTS IN AKURE,  
ONDO STATE.**

**BY**

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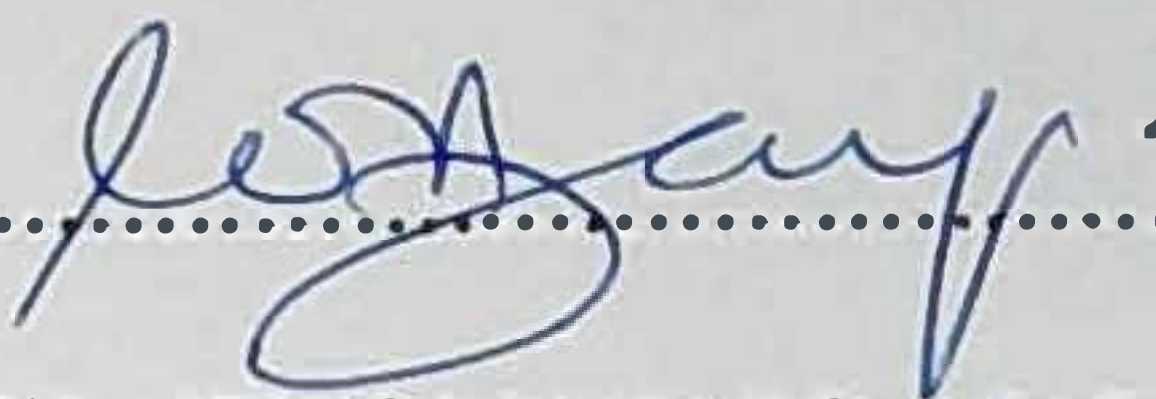
**A PROJECT IN THE DEPARTMENT OF EPIDEMIOLOGY AND MEDICAL  
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## CERTIFICATION

This is to certify that Leye-Adebayo Mary Salewa carried out this work in the Department of Epidemiology and Medical Statistics, Faculty of Public Health, College of Medicine, University of Ibadan, Nigeria.

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## DEDICATION

This work is dedicated to Almighty God, the Immortal, and Invisible, who made the project possible from the onset to completion.

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## ACKNOWLEDGEMENTS

I give glory and honour to Almighty God for His faithfulness and unfailing provision and also for being my source of strength and inspiration.

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## LIST OF ACRONYMS

HIV –	Human Immunodeficiency Virus
HPV –	Human Papilloma Virus
LBC –	Liquid based cytology
LEEP –	Loop electrosurgical excision procedure
OCs –	Oral contraceptives
RFs –	Risk Factors
SPSS -	Statistical Package for Social Sciences
STIs –	Sexually Transmitted Infections
VIA –	Visual Inspection with Acetic Acid
VILI –	Visual Inspection with lugol's iodine
WHO –	World Health Organization

## ABSTRACT

Cervical cancer is the second leading cause of cancer death amongst women in developing countries including Nigeria where there are no effective screening and prompt treatment of precancerous condition of the cervix. Poor knowledge of cervical cancer and the risk factor as well as poor utilization of screening services have been shown to increase mortality and morbidity. Although a lot of research has been conducted on uptake of cervical cancer screening among Nurses and in antenatal clinics, not so much has been documented on utilization of screening services among female public servants. Hence, this study was designed to investigate the determinants of the utilization of cervical cancer screening services among female public servants in Akure, Ondo State.

A cross-sectional design was adopted for the study and a sample size of 313 consenting women were interviewed using interviewer-administered structured questionnaire. This sought information on demographics, screening practice and willingness to be screened. Knowledge of cervical cancer was assessed using a 65point scale. Score greater than or equal to 40 was chosen as the cut off in determining good knowledge. Knowledge of cervical cancer risk factors was also assessed using a 50point scale. Score greater than or equal to 25 was chosen as the cut off in determining good knowledge. Data were analyzed using descriptive statistics and Chi-square was used to assess the association between categorical variables with level of significance set at 5%.

Mean age of respondents was  $43.9 \pm 6.5$  years, 49.2% were in their 4<sup>th</sup> decade of life, 87.9% were married, 79.2% were Christians, 67.1% were senior cadre, 79.2% had HND/BS.c, and 70.8% from a monogamous setting. Mean knowledge score was  $45.1 \pm 7.038$  with 24.9% having good knowledge of cervical cancer. While mean knowledge score for cervical cancer risk factor was  $43.7 \pm 6.593$  with 75.7% having good knowledge. Only 5.4% had ever been screened while 41.2% were willing to be screened. Reasons mentioned for not being screened include little understanding of cervical cancer mentioned by 65%, Not advised or recommended by a doctor (91.2%), thinking of not being at risk (88.2%), do not know where to go for screening (74.7%), believe that screening is for promiscuous women (54.1%), believe that they are healthy (95.3%) and have never heard of cervical cancer screening (67.6%).

Majority of respondents who had good knowledge had been screened (p-value= 0.011), while others who had not been screened were willing to have a screening test (p-value < 0.05). Also, a respondent whose family members have or has had cervical cancer were morewilling to be screened (p-value= 0.048).

### **Conclusion**

The poor level of knowledge of cervical cancer and practice of cervical cancer screening among the public servant in Akure underscores the need for the provision of screening services and effective health education to promote preventive practices and inculcate screening culture among the women.

### **Keywords**

Cervical cancer knowledge, cervical cancer screening, Risk factors, Willingness, Public servants

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## CHAPTER ONE

### 1.0. INTRODUCTION

#### 1.1. Background of the Study

Cervical cancer is the commonest malignancy of the female genital tract. The world is facing an emerging global epidemic, a rising incidence of cervical cancer in almost all countries and regions of the world. Cervical cancer has claimed many lives of women worldwide. Globally, nearly 1.5million cases of cervical cancer are recognized and 85% of these are in developing countries like Nigeria. In the developed countries, the incidence of cervical cancer has reduced by over 70% in the last 50years while the burden seems to be on the rise in developing countries. It is expected that between year 2012 and 2025, the incidence of cervical cancer in developing countries will rise from 444,546 to 588,922 (Ferlay *et al*, 2013).

Cervical cancer is listed among the top five cancers that affect women globally (Blackman *et al*, 2013). The crude incidence rate of cervical cancer is 19.3 in Nigeria, 19.9 in western Africa and 15.8 worldwide. And it ranks the second most frequent cancer among women between ages 15 and 44 years of age in Nigeria (Aminu *et al*, 2014).

According to the 2014 African cervical cancer Multi indicator incidence and mortality scorecard, out of the 20 countries globally with the highest incidence of cervical cancer, 16 are African countries. Eastern Africa is said to have the highest incidence of cervical cancer. Malawi and Mozambique are globally known to have the highest age standardized incidence rate of 75.9 and 65.0. (Africa coalition on maternal newborn and child health, 2014). In Sub-Saharan Africa, about 35 cervical cancer cases are diagnosed for every 100,000 women, compared with only about 7 new cases for every 100,000 women in North America. About 23 women per 100,000 die from cervical cancer in Sub-Saharan Africa, compared to about 3 per 100,000 in North America (CDC, 2014). In Sub-Saharan Africa (SSA) cervical cancer has been under-recognized compare to competing health priorities such as HIV/AIDS, tuberculosis and Malaria. In Sub-Saharan Africa, 34.8 new cases of cervical cancer are diagnosed per 100,000 women annually and 22.5% per 100,000 women die from the disease (WHO, 2013).



Furthermore, in most Sub-Saharan countries data on the prevalence and mortality of cervical cancer are either sparse or unavailable. Only 17% of African countries have a national programme and a specific budget for fighting cervical cancer. And where such a cervical cancer programme exists, the effective coverage may be low. In addition, those women at the highest risk of developing cervical cancer may have the most difficult access to care (Catherine et al, 2015).

According to a study, about 2.7 million women between the ages 25 and 64 years die due to cervical cancer; 2.4 million from developing countries and 0.3 million from developed countries. Worldwide a woman dies of cervical cancer every two minutes (Adefuye, 2006). The morbidity and mortality of this preventable disease continue to remain high in developing countries like Nigeria, whereas it is declining in developed countries. It has been projected that in the year 2025 there will be 19440 new cervical cancer cases and 10991 cancer deaths in Nigeria (Ferlay et al, 2013). According to a study done in the University College Hospital (UCH) out of 1942 total malignancies recorded in the cancer registry in 2007, 353 cases were due to cervical cancer indicating a high incidence rate (Ndikom and Ofi, 2012). Also, about 36.6 million Nigerian women aged  $\geq 15$  years were reported to be at risk of developing cancer of the cervix in 2007 (Ahmed et al, 2013).

The human papilloma virus (HPV) is said to be a necessary cause of cervical cancer, commonly serotypes 16 and 18, which is present in 99.9% of cases combined with other risk factors such as oral contraceptive use, smoking, multiparous, early sexual initiation and multiple sexual partners (Ajah et al, 2015). In Nigeria about 23.7% of women are estimated to harbor the Human Papilloma Virus (HPV) and the invasive cervical cancers are attributed to HPV subtypes 16 and 18 (Ferlay et al, 2013). About 40.43 million women are said to be at risk of developing cancer and evidence from epidemiological studies have established an association between this sexually transmitted HPV and cervical cancer (WHO/ICO, 2010).

Cancer of the cervix is a preventable disease and also is cured if detected early (Arevian et al, 2006). A number of studies have proved effective screening programs to reduce the incidence of cervical cancer in women in the developed countries (Horan et al, 2007). Detecting cervical cancer in its earlier stage is life saving as it reduces cervical cancer rates by 60-90% (American

cancer society, 2006).The prevention of cervical cancer involves providing widespread and regular cervical screening services for all women who have been sexually active. This is done by the HPV test, Pap smear test or the Visual Inspection with Acetic Acid (VIA) (RTCOG, 2003).

The Papanicolau (pap) smear is one of the essential screening tools for early diagnosis of cervical cancer and most effective preventive measure (WHO, 2006). In developing countries like Nigeria where knowledge and awareness of cervical cancer is limited, it is unlikely for women to access screening services and cases are presented at advanced stages. The American cancer society recommends screening from age 21years (American Cancer Society, 2012).

The difference in the incidence of cervical cancer in developed and developing countries is the high level of awareness, utilization and the availability of screening facilities in developed countries.

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## 1.2 PROBLEM STATEMENT

Cervical cancer is the second most common cancer worldwide after breast cancer, with a global estimation of about 530,000 new cases and 275,000 deaths each year (Bray *et al.*, 2012). Each year approximately 14,089 women develop cervical cancer and about 8240 women die from cervical cancer in Nigeria (WHO/ICO, 2014). In Nigeria, the national incidence of cervical cancer is 250/100,000. Human papilloma virus (HPV) prevalence is about 24.8%. (Ahmed *et al.*, 2013). In recent times, statistics available have shown that in Nigeria, cervical cancer accounts for about 15percent of female cancers as compared to 3.6 percent in developed countries. Consequently, cervical cancer kills a woman every hour in the country (Amosu *et al.*, 2011).

In a study conducted among nurses at Nnamdi Azikwe University Teaching Hospital, only 5.7% of nurses have ever been screened (Udigwe, 2006). In another study conducted at the University College Hospital, Ibadan on the utilization of screening services, out of a total number of 503 nurses only 34.6% nurses have ever been screened (Arulogun and Maxwell, 2012).

In developing countries of the world like Nigeria, a large number of women are diagnosed in advanced stages with poor survival rates (Sankaranarayan *et.al.*, 2001). This might be due to ineffective screening facilities, poor knowledge and awareness. The negative health seeking behavior of women can also lead to the poor utilization of the screening facilities. Currently in Nigeria, less than 10% of women have ever had cervical screening (WHO/ICO, 2010).

Cervical cancer is common among Nigerian women with a national age standardized incidence rate of about 33.0 cases per 100,000 women per year and 60% of Nigerian women live in rural areas with no access to screening (Ferlay, 2014). According to the World Health Organization. Nigeria does not have a widely spread National cervical cancer policy and sufficient screening facilities, thereby most women come to the hospital at advanced stages (WHO, 2012).

### 1.3 JUSTIFICATION

Cervical cancer is a major Public Health issue. Majority of women are ignorant and unaware of cervical cancer prevention program and the utilization of screening services. Most of these women do not use the services because they are not knowledgeable about the importance of screening. Studies conducted in various parts of the world have documented high morbidity and mortality rate among women and it is of great importance to determine the perception, prevention and utilization of the screening facilities among these women in order to inform them on the risks associated with the disease.

Though studies have been done on cervical cancer and these studies were carried out among health care workers, women attending the antenatal/gynecology clinics but very few studies have been carried out among other female professionals more so among female public servants working in various ministries.

Cervical cancer is a preventable disease when it is discovered early (pre-invasive stage) and there are effective methods of treatment for pre-invasive cervical cancer, screening is known to reduce the incidence and mortality of invasive cancer of the cervix. To ensure that most women benefit from cervical screening services, most developed countries have put in place effective screening programmes. This is not the case in most developing countries like Nigeria. However, screening levels remain low at just 3.2 percent among women aged 18-69 years compared with 70 percent of women in the developed world (WHO 2010).

Therefore, a study on the determinants of the utilization of cervical cancer screening services among female public servants in various ministries stands to enlighten these women on the knowledge of cervical cancer and the importance of screening. Furthermore, the findings of this study will also inform the Ministry of Health who are policy makers to include cervical cancer screening at the point of entry during recruitment in the state and to organize seminars in order to create awareness of cervical cancer and the importance of screening for all women in the state.

## 1.4 RESEARCH QUESTIONS

1. What proportion of female public servants in the various Ministries has knowledge about cervical cancer and the screening services?
2. What proportion of female public servant has been screened for cervical cancer?
3. What are the factors influencing the utilization of the screening services among female public servants in the various ministries?
4. What proportion of the female public servants is willing to utilize screening programs?
5. What are the prevalent risk factors of cervical cancer among female public servants?

## 1.5 OBJECTIVES

The study assessed the utilization of cervical cancer screening services and the determinants among female public servants working in Akure, Ondo state.

### 1.5.1 SPECIFIC OBJECTIVES

1. To assess the knowledge of cervical cancer and screening services among female civil servants.
2. To determine the proportion of women using and willing to make use of cervical cancer screening services.
3. To determine the prevalence of risk factors for cervical cancer among the female civil servants.
4. To determine the factors influencing the utilization of the screening services.

## CHAPTER TWO

### 2.0 LITERATURE REVIEW

#### 2.1 Pathophysiology of Cervical cancer

The cervix is the lower, narrow end of the uterus (a hollow, pear-shaped organ where the foetus grows). The cervix leads from the uterus to the vagina (National cancer institute, 2015).

A thin layer of tissue made up of cells covers a woman's cervix and these healthy cells grow, divide and are replaced. Cervical cancer occurs from uncontrolled growth of abnormal cells in the cervix. When cells of the cervix start to change and become abnormal, it is called dysplasia of the cervix or cervical dysplasia. Dysplasia is a pre-cancerous condition, which means the cells are not yet cancerous but there is a high chance of becoming cervical cancer. Dysplasia of the cervix can be treated if detected early. Cancer cells divide rapidly and spread to other organs, then eventually form a mass of tissue called a tumor (Canadian cancer society, 2015).

Cervical cancers begin in the cells in the transformation zone. These cells do not suddenly change into cancer; instead the normal cells of the cervix first gradually develop pre-cancerous changes that turn into cancer. The main types of cervical cancers are squamous cell carcinoma and adenocarcinoma. Most cervical cancers about 9 out of 10 are squamous cell carcinomas. These cancers form from cells in the exo-cervix and Squamous cell carcinomas most often begin in the transformation zone (where the exo-cervix joins the endo-cervix). Most of the other cervical cancers are adenocarcinomas. Adenocarcinomas are cancers that develop from gland cells. Cervical adenocarcinoma develops from the mucus-producing gland cells of the endo-cervix (American cancer society, 2014).

The change from cervical pre-cancer to cervical cancer usually takes several years, but it can also happen in less than a year. For most women, pre-cancerous cells go away without any treatment but in some women pre-cancers turn into invasive cancers. The stratified squamous epithelium covering the cervix provides protection from toxic substances and infection. The top layers are continually dying and sloughing off but it is maintained by the constant and orderly formation of new cells in the basal layer. However, in the presence of persistent HPV (human

papillomavirus), infection and other cofactors, such as, early sexual activity, multiple pregnancies, long-term use of oral contraceptives, the metaplastic squamous cells of the transformation zone take on an abnormal appearance, cervical squamous pre-cancer (dysplasia). These cells later multiply in a disorderly manner typical of cancerous change to produce squamous cell carcinoma. During puberty, pregnancy and in women using oral contraceptives, the transformation zone on the ecto-cervix is enlarged (WHO, 2006).

## **2.2 Burden of cervical cancer**

Cervical cancer is the second most common cancer among women worldwide and is the leading cause of cancer deaths in developing countries. In 2008, it was estimated that 529,409 new cases occurred globally, with 274,883 of the women (52% of cases) dying. Of the total new cases each year, about 86% occur in developing countries, where unfortunately 80-90% of cervical cancer related deaths occur (GLOBOCAN 2008). With the peak age of cervical cancer being 35-45 years of age, it claims the lives of women in the prime of their life when they may be raising children, caring for the family, and contributing to the social and economic life of their community.

In sub-Saharan Africa (SSA) the magnitude of the problem has been under-recognized and under prioritized compared to competing health priorities such as HIV& AIDS, tuberculosis and malaria. In sub-Saharan Africa, 34.8 new cases of cervical cancer are diagnosed per 100,000 women annually and 22.5% per 100,000 women die from the disease (WHO 2013). This is due to lack of epidemiological data and poor awareness, lack of human and financial resources, non-existent cancer service policies and lack of political will to address the complex problem (Denny et al, 2006; Parkin et al, 2008).

## **2.3 Cervical Cancer Screening**

Cervical cancer screening is acknowledged as currently the most effective approach for cervical cancer control, and it is associated with reduced incidence and mortality from the disease (Lyimo et al, 2012).

Cervical cancer screening is the most preventive measure and the purpose of the screening is to

detect the early pre-cancerous conditions and treat them before they develop into invasive cervical cancer (Bosch *et al*, 2002). Among all cancers, cervical cancer can be said as the only type that can be totally prevented if there is regular screening and treatment at the pre- cancerous stage (Bosch *et al*, 2002). There are several methods available for detection of several forms of pre-cancers and these include direct visual inspection of the cervix aided by acetic acid and iodine (visual inspection with acetic acid [VIA] and visual inspection with Lugol's iodine [VILI]), which causes recognizable colour changes. Other screening techniques, like cytology (conventional Pap smears, liquid- based cytology) and HPV DNA testing, and treatment of pre-cancer using cryotherapy or the loop electrosurgical excision procedure (LEEP), are helpful in reducing the burden of cervical cancer (Bosh *et al*, 2002).

Cervical cancer is however easily detectable and curable in its early stages. Unfortunately, only 5% of women in developing countries undergo screening for cervical cancer compared to over 40% in developed countries, and 70% or higher in countries that have shown marked reduction in incidence and prevalence of cervical cancer. It is therefore not surprising that in Africa, where screening rates are very low the majority of women present at late stages with invasive and advanced disease. Women should be screened at every opportunity of contact with a health professional either at postnatal clinics, STI clinics and gynecological clinics. For women who are sexually active, annual screening from age 18 to 35 years is advised; thereafter every 3 to 5 years, provided the test result remains negative (WHO, 2006). In developed countries the prevalence and mortality of cervical cancer has fallen between 30% and 75% because resources are allocated to prevention initiatives (Clifford *et al*, 2005). However, the success of cervical cancer screening depends on high participation of women, which is also determined by the women's knowledge, perceptions, attitudes and other socio-cultural issues.



The high incidence and prevalence of cervical cancer in developing countries such as Nigeria is quite alarming and an example is a pilot study in Jos, Nigeria, which reported an estimated annual incidence rate of cervical cancer in 77/1,000 women with mortality of 3000–8000 (Obafunwa *et al*, 1999; Olaleye , 2011). These estimates gotten from the pilot study in Jos is much higher than those of the United States. The uptake of Pap smear test in Nigeria is very low even and also in other developing countries which contributes to the reported levels of cervical cancer and its morbidity (Khalid , 2009). It has been reported that almost two thirds of cervical cancer cases in Nigeria present at stage III or later, and that a single one time screen could potentially save more than 6,000 women annually (Adewole , 2005). Various reasons have been suggested for the low utilization of Pap smear test screening in Nigeria. The two main reasons are lack of awareness and poverty (Obiechina , 2009).

Furthermore, a strong relationship between poverty and incidence or prevalence of cervical cancer in low-income countries in Africa, such countries including Nigeria with high incidence of cervical cancer, were reported to have lower rates of screening. Some investigators concluded that increased awareness might not translate into increased utilization, because studies among healthcare workers, medical students and physicians, who have a high level of awareness in Nigeria, have demonstrated a lower level of utilization than non-healthcare workers (Oyebode A. 2004). In a study conducted in Enugu it was found that the utilization of the subsidized cervical cancer screening service is very poor (Leonard *et.al*, 2003).

## 2.4 SCREENING METHODS

**2.4.1 Exfoliativecervico-vaginal cytology:** Also known as the Pap smear screening technique has been used from as far back as 1927 when papanicolau was introduced and for many years been in use. For many years the Papanicolaou (Pap) smear has been the gold standard method of cervical cancer screening.

In this technique, Pap smear collection is obtained from the cervix and the endo-cervical canal. Samples taken are then smeared on a slide, which is then fixed with cytology fixative. The inaccuracy of this test is about 5% to 10% cases, which has been related with wrongfully taking the sample due to poor technic of sample collection. Pap smear screening has proven to be the most successful method of detecting cervical cancer and has helped in decreasing morbidity and mortality brought about by cervical cancer. (Nouvo, 2001). The Pap smear has remained the most effective cervical screening test for use in population screening programs in high and medium resourced countries (International Agency for Research on Cancer, 2005).

**2.4.2 Liquid based cytology:** Sample collection method is similar to that of the conventional Pap smear method although a special sample-collecting device that collects exfoliated cells from transformation zone of the cervix. (American college of obstetricians, 2009). The device is placed in a vial that contains preservative that contains hemolytic and mucolytic agents. In this technique there is even distribution of cells with reduced cellular debris and RBC's in the sample, this has highly decreased the incidents of positive false diagnosis of cytological atypia and is better at detecting squamous abnormalities. (Kerka, 2006)

United states survey of 2003 indicated that the liquid based cytology (LBC) technique was found to be more commonly used compared to the pap screening technique with over 90% of obstetrician-gynecologists and physicians preferring it to Pap smear screening. Nationally representative studies showed that among outpatients visitors between 2006-2007 an approximate of 70% were tested using the liquid based cytology making it the most common method of screening presently. (Hing, 2011)

**2.4.3 Visual screening:** This type of screening involves direct inspection of the cervix without taking of samples and although it is less tedious in terms of preparation and inspection, it is considered to be less accurate in identifying precancerous conditions. However with the use of acetic acid (vinegar) the precancerous cells temporarily turn white when exposed to the solution therefore making it easy to identify them. In other cases iodine-based solution is used which turns normal cervical cells brown and the abnormal cells remain yellow or unstained making them clearly visible. This has made Visual inspection with added solutions is quite reliable in its use as compared to pure visual screening without use of any agent. (PATH, 2000.)

**2.4.4 HPV DNA Screening:** Aimed at detecting high risk HPV types 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 59 and 68 which are often associated with high grade cervical intraepithelial neoplasia (HSIL) and invasive cancer in the cervix. Technics available in this method of screening include southern bolt hybridation, which is said to be a laboratory gold standard. It is however laborious and tedious and not very suitable for clinical use because it demands for use of fresh tissue which is not easy to conduct especially in mass screening programmes. A more suitable technic has been use of Hybrid capture 2 assay which is mostly used in HPV DNA screening. Samples for the screening are obtained from cell suspensions acquired from liquid based cytology or use of the cytocervical brush (Kerkal&Kulkarmi, 2006).

## 2.5 Factors Influencing cervical cancer screening uptake

Several factors influencing cervical cancer screening have been reported. They include: lack of awareness, age and marital status, inadequate access to healthcare facility due to poor infrastructure, unawareness among the health care providers in rural areas regarding importance of early diagnosis and treatment (Singh S and Badaya S, 2012). Other factors include; existence of alternative medicine, deficient economic and moral support from husband and family and an inappropriate demand for providing cervical cancer screening from the potential beneficiaries (Basu P and Chowdhury D, 2009).

### 2.5.1 Demographic characteristics

Demographic characteristics include education, age and marital status. Several studies have found that women with high screening rates have a high level of education (Liao C et al 2006; Fernández *et al* 2009). However, women with high education may not necessarily seek screening (Abotchie and Shokar 2009) thus, additional factors must be considered. Regarding age rates of screening are lower in younger women aged 20-29 years and elderly women aged 60 years and above (Cyril *et al* 2009). In a study it was found that unmarried and widowed women are less likely than married women or women living with a partner to obtain screening (Liao et al 2006). In addition, some studies have found that single women are more likely than married women to have pap screening (Cyril *et al* 2009).

### 2.5.2 Level of knowledge

Women's knowledge on cervical cancer and its risk factors have been listed as a key factor-influencing uptake of screening. Women with low levels of knowledge about cervical cancer and its prevention are unlikely to access screening services. A study in Moshi Tanzania looking at the most important factors related to the uptake of screening among 354 women aged between 18 and 69 revealed that, more than half (59.6%) of the participants had a low level of knowledge of cervical cancer and its prevention. The study also showed that those with the highest level of knowledge about cervical cancer and its prevention were more likely to be screened than those with low or medium level of knowledge (Iyimo and Beran, 2012).

In another study in Ghana among college students on knowledge and health beliefs on cervical cancer. Human papillomavirus is the most important risk factor for developing cervical cancer according to the American cancer society yet only 7.9% of the participants in the study knew about HPV (Abotchie and Shokar 2009). Also in Uganda, a study on influences on uptake of reproductive health services in Nsagi community and their implications for cervical cancer screening found ignorance about cervical cancer risk factors as one of the major barriers to screening uptake (Mutya *et al*, 2007).

In a cross-sectional study done in Kenya among 384 female primary school teachers on awareness of cervical cancer risk factors and practice of Pap smear testing 87% of the women were aware about cervical cancer and 75% knew about the Pap smear test. (Ombech, *et al* 2012). Another study done in Thika among 498 women on factors affecting uptake of cervical cancer, lack of awareness of cervical cancer and the benefits of early detection measures were reported as critical barriers to screening. In this study, about 17.3% of the women had ever gone for cervical cancer screening (Ngugi, *et al* 2012).

In a study in Lagos among nurses found that 99% of the respondents were aware of cervical cancer, 92% of the respondents were also aware of a major risk factor (human papillomavirus). (91%) were aware of Pap smear as one of the screening techniques of cervical cancer but most of them had never done the screening.

### **2.5.3 Socio-cultural factors**

Several socio-cultural factors are associated with low uptake of cervical cancer screening services. They include myths/perceptions surrounding the disease and test, women's lack of ability to make decisions, lack of social support and traditions/customs that are still practiced in the communities. For instance, men are considered to be the leaders of the family and since the women lack the ability or right of decision making, the husband serve as key decision-maker and may prevent the woman from seeking screening services (Singh KK *et al* 1998). The role of men may thus, be important in determining women's access to screening for cervical cancer.

Other cultural barriers may lead to negative opinions about screening including concern about exposure of private body parts (Hummeida, *et al* 2009). The gender of the health worker who performs the Pap smear test also matters therefore, may be important which means only female health workers will be allowed to do the screening (Bener, *et al* 2001).

A study carried out in Nigeria among 846 women in Owerri, South -Eastern Nigeria established that 52.8% of the women had heard about cervical cancer and only 7.1% had ever done a Pap smear. In this study, 11.6% of the respondents reported fear of positive results as a reason for not taking the Pap smear test (Ezem, 2007).

#### **2.5.4 Socio-economic factors**

Studies have found that the clash of economic activities with clinic appointment times can lead to low uptake of cervical cancer screening. Poverty is also one of the factors associated with low uptake since the cost of screening has been found to be high. For instance a study in Camden London among ethnic Somali women found that the clash of clinic appointment time with market days and child care needs were associated with low uptake of screening (Abdulahi *et al.*, 2009).

In Kenya a study done in Eldoret at the Moi teaching and referral hospital found that 11.4% of the participants lacked the finances to pay for the test and they identified this as the reason they do not go for screening. The study was conducted among 219 women attending the MNCH-FP clinic at the hospital (Were *et al.*, 2012).

#### **2.5.5 Accessibility**

Long distances to the cervical cancer screening services reduce the likelihood of women accessing screening (Jo W *et al* 2009). A cross-sectional, community-based survey revealed that poor transportation is an additional problem (Bener *et al* 2001).

In Bangladesh, a study on community perceptions of cervical cancer and cervical cancer screening among 220 men, women and children found that low priority for seeking help for symptoms, limited availability of health services were among the most common barriers to screening (Ansink, *etal* 2008).

## 2.6 CERVICAL CANCER RISK FACTORS

### 2.6.1 Human papilloma virus infection

The most important risk factor for cervical cancer is the human papilloma virus (HPV). HPV is a group of more than 150 related viruses, some of which cause a type of growth called *papillomas*, which are more commonly known as *warts*. HPV can infect cells on the surface of the skin, and those lining the genitals, anus, mouth and throat, but not the blood or internal organs such as the heart or lungs. A woman must be infected with HPV in order to develop cervical cancer because it is a necessary cause of the disease. This can mean infection with any of the high-risk types, HPV 16 and 18 that causes almost all cervical cancers (Gharoro and Ikeanyi, 2006; WHO, 2006).

HPV can be spread from one person to another during skin-to-skin contact. One major way HPV is spread is through sex, including vaginal, anal, and even oral sex. Certain types of HPV may cause warts on or around the female and male genital organs and in the anal area. These are called low-risk types of HPV because they are seldom linked to cancer. Other types of HPV are called high-risk types because they are strongly linked to cancers, including cancer of the cervix, vulva, and vagina in women, penile cancer in men, and cancers of the anus, mouth, and throat in both men and women. Infection with HPV is common, and in most people the body can clear the infection by itself. While in some people the infection does not go away and becomes chronic (American cancer society, 2014).

### 2.6.2 Smoking

When someone smokes, they and those around them are exposed to risk of many cancer-causing chemicals that affect organs other than the lungs. These harmful substances are absorbed through the lungs and carried in the bloodstream throughout the body. Women who smoke are about twice as likely as non-smokers to have cervical cancer. Tobacco by-products have been found in the cervical mucus of women who smoke. These substances are said to damage the DNA of cervix cells and may contribute to the development of cervical cancer. Smoking also makes the immune system less effective in fighting HPV infections (American cancer society, 2014).

### **2.6.3 Immunosuppression**

Human immunodeficiency virus (HIV), this virus causes AIDS, it damages the immune system and puts women at higher risk for HPV infections. This might explain why women with AIDS have a higher risk for cervical cancer. The immune system is important in destroying cancer cells and slowing their growth and spread. In women with HIV, a cervical pre-cancer might develop into an invasive cancer faster than it normally would. Another group of women at risk of cervical cancer are those taking drugs to suppress their immune response, such as those being treated for an autoimmune disease (in which the immune system sees the body's own tissues as foreign and attacks them, as it would attack a germ) or those who have had an organ transplant (American cancer society, 2014; Grulich *et al*, 2007).

### **2.6.4 Chlamydia infection**

Chlamydia is a relatively common kind of bacteria that can infect the reproductive system. It is spread by sexual contact. Chlamydia infection can cause pelvic inflammation, leading to infertility. Some studies have seen a higher risk of cervical cancer in women whose blood test results show evidence of past or current chlamydia infection (compared with women who have normal test results). Women who are infected with chlamydia often have no symptoms. In fact, they may not know that they are infected at all unless they are tested for chlamydia during a pelvic exam (American cancer society, 2014).

### **2.6.5 Diet low in fruits and vegetables**

Women whose diets don't include enough fruits and vegetables may be at increased risk of cervical cancer (American cancer society, 2014).

### **2.6.6 Long-term use of oral contraceptives (birth control pills)**

There is evidence that taking oral contraceptives (OCs) for a long time increases the risk of cancer of the cervix. Research suggests that the risk of cervical cancer goes up the longer a woman takes OCs, but the risk goes back down again after the OCs are stopped. In one



study, the risk of cervical cancer was doubled in women who took birth control pills longer than 5 years, but the risk returned to normal 10 years after they were stopped.

The American Cancer Society believes that a woman and her doctor should discuss whether the benefits of using OCs outweigh the potential risks. A woman with multiple sexual partners should use condoms to lower her risk of sexually transmitted illnesses no matter what other form of contraception she uses (American cancer society, 2014).

### **2.6.7 Multiple Pregnancies (Multiparous)**

Women who have had 3 or more full-term pregnancies have an increased risk of developing cervical cancer. One theory is that these women had to have had unprotected intercourse to get pregnant, so they may have had more exposure to HPV. Also, studies have pointed to hormonal changes during pregnancy as possibly making women more susceptible to HPV infection or cancer growth. Another reason is that pregnant women might have weaker immune systems, allowing for HPV infection and cancer growth (American cancer society, 2014).

### **2.6.8 Early sexual initiation and first full-term pregnancy at age younger than 17**

Women who were younger than 17 years at first sex are more exposed to a lot of sexual partners. This young women who have had their first pregnancy younger than 17 years are almost 2 times more likely to have cervical cancer later in life than women who waited to get pregnant until they were 25 years or older (American cancer society, 2014).

### **2.6.9 Poverty**

Poverty is also a risk factor for cervical cancer. Many low-income women do not have ready access to adequate health care services, including Pap tests. This means they may not get screened or treated for cervical pre-cancers (American cancer society, 2014; Abdulahi *et al.* 2009).

## **2.6. 10 Family history of cervical cancer**

Cervical cancer may run in some families. If a mother or sister had cervical cancer, the chances of developing the disease are 2 to 3 times higher than if no one in the family had it. Some researchers suspect that some instances of this familial tendency are caused by an inherited condition that makes some women less able to fight off HPV infection than others. In other instances, women from the same family with a person already diagnosed could be more likely to have one or more of the other non-genetic risk factors (American cancer society, 2014).

### **2.6.11 Multiple sexual partners**

Women who have had many sexual partners are more likely to be infected with HPV, which is a necessary cause of cervical cancer but a woman who has had only one sex partner can still be infected if she has a partner who has had many sex partners or if her partner is an uncircumcised male.

Waiting to have sex at older age can help avoid HPV. It also helps to limit the number of sex partners and to avoid having sex with someone who has had many other sex partners. Although the virus most often spreads between a man and a woman, HPV infection and cervical cancer also are seen in women who have only had sex with other women. Someone can have HPV for years and still have no symptoms, which means someone can pass the virus without knowing it (American cancer society, 2014).

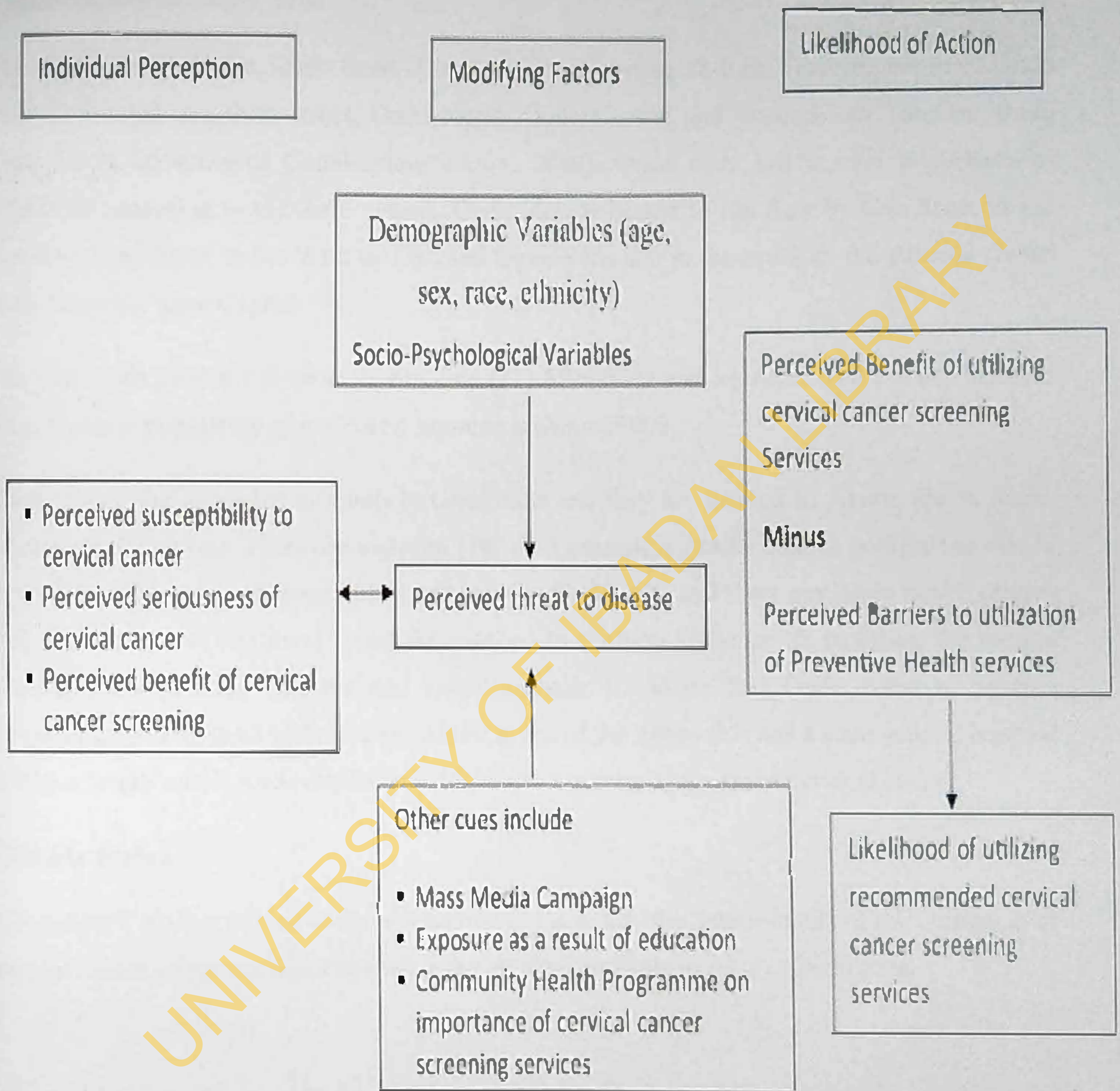
## 2.7 CONCEPTUAL FRAMEWORK

Health Belief Model is a conceptual framework with three major components as it relates to determinants of cervical cancer and utilization of screening services.

The three major components of the health belief model are: individual perception; modifying factors; and the variables affecting likelihood of action:

- Individual perception: perception is the process of becoming aware of objects, qualities or relation by the way of sense organ. The individual's perception of being at risk of cervical cancer will motivate the person to preventive services.
- Modifying factors: these are variables that change or improve likelihood of action. They include demographic variables, level of education, location of health facility, mass media etc. They affect perception of threat; increased knowledge will result in correct perception of threat based on scientific knowledge of cervical cancer.
- Likelihood of action: an individual will take action if she understands that there is a need and that the particular action will help in meeting the need. Also if barriers to the utilization of such services are minimized.
- Since cervical cancer is not usually noticed until late stage the call to go for screening seems to be ignored.

**Figure 1: HEALTH BELIEF MODEL ADAPTED FROM STANHOPE AND LANCASTER.**  
 (Ndikom and Ofi, 2012)



## CHAPTER 3

### METHODOLOGY

#### 3.1 Description of Study Area

The study area is Akure, Ondo State. The state has/comprises 18 local Government areas. Ondo State is divided into three zones, Ondo North, Ondo Central and Ondo South. (Source: Ondo State Local Government Commission, Akure, 2009). Ondo state has a total population of 3,440,000 according to the 2006 census. Ondo state is bound to the East by Edo State, in the North by Kogi State, in the West by Oyo and Ogun State and in the south by the Atlantic Ocean with Akure the State Capital.

The state civil service has about twenty-one (21) Ministries and agencies in the state. In Ondo state, the total population of the Public servants is about 53000.

There exists four specialist hospitals in Ondo state and they are located in Akure, Ondo, Ikare-Akoko and Okitipupa. There are eighteen (18) comprehensive health centres comprising one in each of the 18 local government areas that makeup Ondo state and there are Basic health centres (primary health care facilities) across the villages. In addition to the health facilities, the present administration founded “mother and child hospitals in Akure and Ondo town to provide specialist care to mothers and children. Akure is one of the towns that has a state general hospital in which health care is made available and it is also a screening center of cervical cancer.

#### 3.2 Study Design

A descriptive cross-sectional study was carried out to assess the determinants of the utilization of cervical cancer screening services among female civil servants in Akure, Ondo state.

### 3.3 Study Population

The study was carried out among female civil servants in various State Ministries in Akure, Ondo state.

#### 3.3.1 Inclusion Criteria

This included all female civil servants who give their consent to participate in the study.

#### 3.3.2 Exclusion Criteria

This included all the female civil servants not available during the study period. The out-stationed staff in each ministry was not included in the study

### 3.4 Sample Size Determination

The sample size was estimated using the formula (as cited by Igwilo, 2012) shown below:

$$N = \frac{(Z\alpha)^2 pq}{d^2}$$

Where N is the minimum sample size

$Z\alpha = 1.96$  (Standard normal deviation at 95% confidence level)

$P =$  assumed proportion of federal civil servants women ever utilized screening services in North central Nigeria = 10.2% (Hyacinth *et al*, 2012).

$q = 1 - P = (1 - 0.102) = 0.898$

$d =$  desired level of precision = 5% = 0.05

$$N = \frac{(1.96)^2 \times 0.102 \times 0.898}{0.05^2} = 141$$

Using Design effect =  $141 \times 2 = 282$ .

Using 10% non-response rate (nr), the sample size =  $N \times 1 / 1 - nr$

$282 \times 1 / 1 - 0.1 = 313$ .

A minimum sample size of 313 was required for the study.

### 3.5 SAMPLING TECHNIQUE

Simple random sampling was used to select eleven (11) Ministries among the twenty-one (21) Ministries in the state; Sample size was proportionately allocated to the size of the Ministries.

Using the formula: sample size for each Ministry =  $\frac{n}{N} \times \text{sample size}$

$N$  = Total number of women in the Eleven ministries,  $n$  = total number of women in each ministry.

Systematic random sampling was used to determine participants in each Ministry by picking every  $k^{\text{th}}$  woman on the staff list/attendance register of each ministry. The first woman was randomly selected, and then subsequently every  $k^{\text{th}}$  woman on the list was selected.

No of women in the ministry

Sample size allocated

See Appendix III showing a flow chart of how the respondents used in the study were calculated and selected.

### 3.6 DATA COLLECTION

A semi-structured interviewer-administered questionnaire was designed and developed to gather information from the respondents. The questionnaire was divided into four sections labeled section A, B, C, D. Section A consist of questions on the socio-demographic characteristics of the respondents, Section B consist of questions on the knowledge of cervical cancer, Section C contained questions on the screening uptake and willingness, Section D contain questions on risk factors of cervical cancer. A pre-test of the questionnaire was conducted among 30 female civil servants in Oyo state. To test the reliability of the questionnaire, the internal consistency of the questionnaire was further tested with Cronbachs' alpha co-efficient analysis. This is a model of internal consistency based on the average inter-item correlation. When results show correlation coefficient greater than 0.5, they are said to be reliable. A correlation coefficient result of 0.7 was obtained using SPSS version 20.0.

The pre-test helped to determine the respondents understanding of the instrument to make necessary adjustment to the questionnaire before the main study was carried out among civil servants in Akure, Ondo State.

### **3.7 DATA COLLECTION PROCESS**

The data collection involved the following steps:

1. Permission was obtained from the Permanent Secretary (PS) in each ministry to conduct the study among the female staff in the Ministry, to disclose the nature of study, the objectives and what these women stand to gain from the study with assurance of confidentiality regarding their responses.
2. The questionnaire was interviewer administered to each respondent and the completeness of the questionnaire was checked with the help of research assistants.
3. Completed questionnaire was collected immediately.

### **3.8 DATA ANALYSIS**

The management of the quantitative data included: checking for the quality of information, problems noted during data collection can be resolved immediately, serial numbers will be written on the questionnaires for easy identification, Questionnaires will be coded.

Data was entered into the IBM SPSS statistics version 20 and was used to analyze the questionnaire.

Knowledge of the respondents was calculated using score obtained from the Likert scale (Strongly Agree, Agree, Strongly Disagree, Disagree and Not sure). The total score obtained from the 13-item knowledge questions on cervical cancer was 65. A score of greater than or equal to 40 was chosen as the cut off in determining good knowledge of cervical cancer while a score less than 40 indicated poor knowledge of cervical cancer.

The total score obtained from 10-item knowledge questions on cervical cancer risk factors was 50. Score greater than or equal 25 was chosen as the cut off in determining good knowledge of cervical cancer risk factor while a score less than 25 indicated poor knowledge of cervical cancer risk factor.



Frequencies and proportions, percentages and crosstabs of relevant variables were used to summarize the data. Chi-square test was used to determine association between categorical variables. A p-value less than 0.05 was considered to be statistically significant.

### 3.9 ETHICAL CONSIDERATION

The research proposal was submitted to the Ethics Review Committee of the Ondo State Ministry of Health for the approval of the research protocol and study instrument. Permission to conduct the study and informed verbal consent was obtained from the respondents.

A number of steps were taken to address the ethical issues essential in the study:

**Making participation Voluntary:** Participation in the study was made voluntary.

**Assurance of confidentiality:** using serial numbers instead of respondent's names ensured confidentiality.

**Beneficence to participants:** The study tends to benefit the respondents and the general public as it provides information for developing future intervention programs and researches related to cervical cancer.

**Non-maleficence to participants:** No harm was done to respondents, as the research is neither invasive nor harmful.

## CHAPTER 4

### RESULTS

#### 4.1 Socio-demographic characteristics of respondents

The mean age of respondents was  $43.9 \pm 6.5$  years. About half 154(49.2%) of the respondents were in their 4th decade of life. Majority 275(87.9%) of the respondents were married, 18(5.8%) were widowed while 12(3.8%) and 8(2.6 %) were single and divorced, respectively. Predominant proportions 216(70.8%) of the married respondents were from a monogamous setting. Most 248(79.2 %) of the respondents were Christians while only 65(20.8%) were Muslims. Two hundred and eighty-one(79.2%) were from the Yoruba tribe. The level of education showed that more than two thirds 179(79.2%) had HND/BSc as highest level of education, followed by OND 89(28.4%), Masters degree 24(7.3%) with the least having SSCE 22(7.0%). Two-thirds 210(67.1%) of the respondents were in the senior cadre. The mean average monthly income was  $59,292 \pm 24,960$  naira, with most 190(60.7%) reporting an average monthly income between 40,000 and 90,000 naira.

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**Table 4:1 Frequency distribution of Socio-demographic Characteristics of Respondents**

Variables	Frequency (%)
<b>Age group (years)</b>	
< 40	83(26.5)
40 - 49	154(49.2)
≥ 50	76(24.3)
Mean±SD	43.87±6.54
<b>Marital Status</b>	
Single	12(3.8)
Married	275(87.9)
Widowed	18(5.8)
Divorced	8(2.6)
<b>Religion</b>	
Christianity	248(79.2)
Islam	65(20.8)
<b>Ethnicity</b>	
Yoruba	281(89.8)
Others	32(10.2)
<b>Highest Level of Education</b>	
SSCE/Equivalent	22(7.0)
OND	89(28.4)
HND/BSC	179(57.2)
Masters/PhD	23(7.3)
<b>Cadre</b>	
Junior	103(32.9)
Senior	210(67.1)
<b>Family Setting</b>	
Monogamy	216(70.82)
Polygamy	89(29.18)
<b>Average Monthly Income</b>	
< 40,000	87(27.8)
40,000 - 90,000	190(60.7)
> 90,000	36(11.5)
Mean±SD	59,291.82±24,959.53

## 4.2 Knowledge of cervical cancer symptoms

Of the 313 respondents, less than half 137(43.8%) were neutral to the statement that vaginal bleeding during sex is a sign of cervical cancer while 104(33.2%) agreed. Less than one fifth 47(15.0%) agreed that persistent vaginal discharge that smells unpleasant is a sign of cervical cancer, 69(22.0%) agreed discomfort or pain during sex could be a sign of cervical cancer and 53(16.9%) agreed with the statement that condoms use reduce the risk of getting cervical cancer. More than half 178(56.8%) agreed that the chances of curing cervical cancer are better when discovered in early stage. A significantly low proportion of respondents 39(12.5%) agreed that all women are at risk of cervical cancer and 91(29.1%) agreed only promiscuous women are at risk of cervical cancer. while, 32(10.2%) believed that all sexually active women are at risk of cervical cancer. Approximately half 131(41.9%) of them agreed that vaginal bleeding after menopause could be a sign of cervical cancer. More respondents, 89(28.4%) disagreed than agreed 13(4.2%) with the statement that cervical cancer is associated with starting sexual intercourse early in life. Fifty-one (16.3%) believed that cervical cancer can be transmitted through a virus (HPV) from sufferer to another person. About 125(39.9%) agreed cervical cancer occurs only in elderly women. [Table.4.2]

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**Table 4:2** Frequency distributions of responses to items on cervical cancer knowledge Among Respondents (N=313)

Items	SD	D	N	A	SA
	n (%)	n (%)	n(%)	n(%)	n(%)
Vaginal bleeding during sex is a sign of cervical cancer	30(9.6)	25(8.0)	137(43.8)	104(33.2)	17(5.4)
Persistent vaginal discharge that smells unpleasant is a sign of cervical cancer	87(27.8)	81(25.9)	85(27.2)	47(15.0)	13(4.2)
Do you think discomfort or pain during sex could be a sign of cervical cancer	53(16.9)	64(20.4)	106(33.9)	69(22.0)	21(6.7)
Do you think condoms reduce the risk of getting cervical cancer	54(17.3)	73(23.3)	119(38.0)	53(16.9)	14(4.5)
Do you think chances of curing cervical cancer are better when discovered early stage	4(1.3)	11(3.5)	68(21.7)	178(56.8)	52(16.6)
All women are at risk of cervical cancer	115(36.7)	70(22.4)	74(23.6)	39(12.5)	15(4.8)
Only promiscuous women are at risk of cervical cancer	17(5.4)	59(18.8)	124(39.6)	91(29.1)	22(7.0)
All sexually active women are at risk of cervical cancer	94(30.0)	104(33.2)	75(24.0)	32(10.2)	8(2.6)
Do you think menstrual periods heavier or longer than usual could be a sign of cervical cancer	87(27.8)	77(24.6)	107(34.2)	38(12.1)	4(1.3)
Do you think vaginal bleeding after menopause could be a sign of cervical cancer	17(5.4)	29(9.3)	97(31.0)	131(41.9)	39(12.5)
Cervical cancer is associated with starting sexual intercourse early in life	122(39.0)	89(28.4)	80(25.6)	13(4.2)	9(2.9)
Do you think cervical cancer can be transmitted through a virus (HPV) from sufferer to another person	35(11.2)	88(28.1)	129(41.2)	51(16.3)	10(3.2)
Do you think cervical cancer occurs only in elderly women	9(2.9)	16(5.1)	121(38.7)	125(39.9)	42(13.4)

\*SD(Strongly Agreed) D(Disagreed) N(Neutral) A(Agreed) SA(Strongly Agreed)

### 4.3 Knowledge of risk factors of cervical cancer

Table 3 below shows the distribution of the knowledge of the risk factors for cervical cancer among the respondents. Of the 313 respondents, Only 34 women (10.9%) women agreed that cervical cancer is caused by infection with Human papilloma virus transmitted through sexual intercourse, while 55(17.6%)agreed that smoking is a risk factor for cervical cancer. Also, 92 (29.4%) women disagreed that immunosuppressive state like HIV could be a risk factor for cervical cancer. Similarly, about one-third 93(29.7%) of the women disagreed that long-term use of contraceptive pills is a risk factor for cervical cancer. A significantly low proportion 14(4.5%) of the respondents agreed that having too many children is a risk factor for cervical cancer while the same 15(4.80%) was noticed for early sexual debut as a risk factor for cervical cancer.

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Table 4:3 Knowledge of Cervical Cancer Risk Factors among Respondents (N=313)

Items	SD	D	N	A	SA	Total
	n (%)	n(%)	n (%)	n (%)	n (%)	N
Cervical cancer is caused by infection with a virus called HPV transmitted through sexual intercourse	8(2.6)	27(8.6)	238(76.0)	34(10.9)	6(1.9)	313
Smoking	69(22.0)	80(25.6)	104(33.2)	55(17.6)	5(1.6)	313
Having a weakened immune system (e.g. having HIV)	40(12.8)	92(29.4)	91(29.1)	84(26.8)	6(1.9)	313
Long term use of contraceptive pill	68(21.7)	93(29.7)	117(37.4)	31(9.9)	4(1.3)	313
Having many sexual partners	15(4.8)	48(15.3)	111(35.5)	130(41.5)	9(2.9)	313
Sexually transmitted infections	30(9.6)	27(8.6)	94(30.0)	150(47.9)	12(3.8)	313
Having too many children	173(55.3)	81(25.9)	45(14.4)	14(4.5)	0(0.0)	313
Having a sexual partner who has other sexual partners	32(10.2)	60(19.2)	89(28.4)	126(40.3)	6(1.9)	313
Starting to have sex at a young age (before 18 or 20 years)	132(42.2)	89(28.4)	77(24.6)	15(4.80)	0(0.0)	313
Not going for screening	18(5.8)	34(10.9)	100(31.9)	149(47.6)	12(3.8)	313

\*SD(Strongly Agreed) D(Disagreed) N(Neutral) A(Agreed) SA(Strongly Agreed)

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#### 4.4 Knowledge of anatomical site of cervical cancer and sources of information on cervical cancer

Of the 313 respondents only 57(18.2%) were able to correctly identify the cervix as the anatomical site of cancer of the cervix while 138(44.1%) and 104(33.2%) wrongly reported the vagina and the uterus as the anatomical site, respectively. About a third 102(32.6%) of the respondents had no information about cervical cancer, while 45(14.4%) said television/radio was their source of information. This was closely followed by health workers and friends with similar values of 43(13.7%) with the least reported source of information being the church/mosque 3(1.0%). [Table 4.4]

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Table 4.4 Knowledge of the anatomical site of cervical cancer among respondents.

Variables (N=313) Frequency (%)

Anatomical site

N=313

Vagina	138(44.1)
Uterus	104(33.2)
Cervix	57(18.2)
Stomach	11(3.5)
Kidney	3(1.0)

What is the source of your information on cervical cancer

Health worker	43(13.7)
Family/Relative	27(8.6)
Friends	43(13.7)
Internet	25(8.0)
Church/Mosque	3(1.0)
Television/Radio	45(14.4)
NGO/Health seminar	25(8.0)
None	102(32.6)

#### 4.5 Frequency distribution of knowledge on cervical cancer prevention and types of screening test

Half 171(54.6%) of the respondents were aware that cervical cancer can be prevented. Of these, almost all 168(98.2%) of the respondents are aware that early detection by cervical cancer screening can prevent cervical cancer. About 95(55.6%), are aware that avoiding multiple sexual partner can prevent cervical cancer, 29(16.9%) are also aware that avoiding of cigarette smoking can prevent cervical cancer and 21(12.1%) are aware avoiding contraceptive pills can prevent cervical cancer.

Only 38 (12.1%) women are aware that Pap smear test is a method of cervical cancer screening, 5(1.6%) recognized visual inspection with acetic acid as a cervical cancer screening method. Also, HPV DNA test and visual inspection with Lugol's Iodine were recognized by 7(2.2%) and 2(0.6%) of the women, respectively as cervical cancer screening methods. See Table 4.5.

Only 17 (5.4%) have ever been screened for cervical cancer out of whom 11(64.7%) women mentioned they have been screened only once while 6 (25.3%) women have been screened for cervical cancer two or more times. Majority 12(70.6%) of those screened had Pap smear test, 2(11.8%) each had visual inspection with acetic acid and HPV DNA tests while 1(5.9%) had visual inspection with Lugol's Iodine. About half 8(47.1%) of the respondents heard about the screening from health workers. About 129(41.2%) of the respondents were willing to take a cervical cancer-screening test. Only 25(8.0%) women knew centers that provide cervical cancer screening services. 16(5.1%) of the respondents think that cervical cancer screening should be done every year while only 1(0.3%) of the respondents think that cervical cancer screening should be done every 5 years. 117 (37.4%) women think that cervical cancer screening is effective in the prevention of cervical cancer while 39 (12.5%) women think otherwise. See Table 4.5

Table 4:5a Knowledge on cervical cancer prevention and types of screening test

Variables	Frequency (%)
Can cervical cancer be prevented?N= 313	
Yes	171(54.6)
Neutral	81(25.9)
No	61(19.5)
If yes, what are the ways cervical cancer be prevented? n= 171	
Early detection by cervical cancer screening test	
Yes	168(98.2)
Neutral	2(1.2)
No	1(0.6)
Avoid multiple sexual partner	
Yes	95(55.6)
Neutral	38(22.0)
No	38(22.0)
Avoid smoking	
Yes	29(16.9)
Neutral	55(32.2)
No	87(50.9)
Avoid contraceptive pills	
Yes	21(12.3)
Neutral	72(42.1)
No	78(45.6)
Which of the following is cervical cancer screening test?N=313	
Pap smear test	
Yes	38(12.1)
Neutral	269(86.0)
No	6(1.9)
Visual inspection with acetic acid (VIA)N= 313	
Yes	5(1.6)
Neutral	294(93.9)
No	14(4.5)
HPV DNA testN= 313	
Yes	7(2.2)
Neutral	293(93.6)
No	13(4.2)
Visual inspection with lugol's (VILI)N=313	
Yes	2(0.6)
Neutral	293(93.6)
No	18(5.8)

Table 4:5b Knowledge on cervical cancer prevention and willingness to be screened among respondents

Variables	Frequency (%)
Have you ever been screened for cervical cancer?N=313	
Yes	17(5.4)
No	296(94.6)
If yes, which method of screening did you undergoN=17	
Pap smear test	12(70.6)
Visual inspection with acetic acid	2(11.8)
HPV DNA test	2(11.8)
Visual inspection with lugol's (VILI)	1(5.9)
If yes, how did you know about the screeningN=17	
Friends	1(5.9)
Media/Internet	1(5.9)
Family	3(17.6)
Health Personnel	8(47.1)
NGO/Others	4(23.5)
Are you willing to take a screening test?N=313	
Yes	129(41.2)
Neutral	51(16.3)
No	133(42.5)
Do you know centres that provide cervical cancer screening servicesN=313	
Yes	25(8.0)
No	288(92.0)
At what interval is screening done?N=313	
Every year	16(5.1)
Every 3 years	7(2.2)
Every 5 years	1(0.3)
I don't know	289(92.3)
Do you think cervical screening is effective in preventing cervical cancer N=313	
Yes	117(37.4)
Neutral	157(50.2)
No	39(12.5)

#### 4.6 Risk factor practices among respondents

Of the respondents only 75(24.0%) have an exposure to use of oral contraceptive, of which 40(53.3%) have used it for more than 4 years. 27(8.6%) reported ever smoking and 216(69.0%) ever taken alcohol. Approximately one third 66(30.6%) of those who had ever taken alcohol reported taking it within the last 30 days. Two thirds 193(64.8%) of the respondent reported age of sexual debut to be less than 20 years, while a significant number 245(82.2%) of the respondents had two or more sexual partners. 181(57.8%) say their partner never used protection during sex. Of the respondents, only 33(10.8%) have been married two or more times and majority 173(56.2%) had 1-3 children while 135(43.8%) have four or more children. 198(63.3%) reported ever having any form of vaginal infection and 115(36.7%) had no history of vaginal infection. Majority 278(88.8%) reported not having a family member who has or has had cervical cancer. 11(3.5%) of all respondents reported ever been tested for HPV while of those who tested, only 3(27.3%) tested positive. See Table 4.6

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**Table 4:6 Risk Factors of Cervical Cancer among Respondents**

Variables	Frequency (%)
Do you use oral contraceptives (N=313)	
No	238(76.0)
Yes	75(24.0)
If yes how long in years have you used Contraceptives (N=75)	
1 - 3	35(46.7)
4 and above	40(53.3)
Have you ever smoke cigarette(N=313)	
No	286(91.4)
Yes	27(8.6)
How often does your partner use protection during sex(N=313)	
Never	181(57.8)
Rarely	95(30.4)
Often	37(11.8)
Have you ever taken alcohol(N=313)	
No	97(31.0)
Yes	216(69.0)
Have you consumed alcohol in the past 30 daysN=216	
No	150(69.4)
Yes	66(30.6)
Have you ever been tested for HPV(N=313)	
No	302(96.5)
Yes	11(3.5)
If yes, did you test positive to HPV N=11	
No	8(72.7)
Yes	3(27.3)
Have you ever had any form of vaginal infection n=313	
No	115(36.7)
Yes	198(63.3)
Do you have a family member who has or has had cervical cancer(N=313)	
No	278(88.8)
Yes	35(11.2)
Number of sexual partners(N=298)	
One	53(17.8)
Two or more	245(82.2)
Age at first sexual debut (years)(N=298)	
< 20	193(64.8)
≥ 20	105(35.2)
Number of times married(N=305)	
One	272(89.2)
Two or more	33(10.8)
Number of children(N=308)	
1 - 3	173(56.2)
4 and above	135(43.8)



#### 4.7 Factors influencing Screening Uptake among Respondents who have not been screened

Table 4.7 below shows the factors influencing screening uptake among the respondents who had not been screened. About two thirds 193(65.2%) of the women mentioned they had not been screened because they had little understanding of cervical cancer, 133(44.9%) feel the screening procedure is rather painful, 276(88.2%) did not think they were at risk, 221(74.7%) did not know where to go for cervical cancer screening, 282(95.3%) feel they were healthy, hence no perceived need, 270(91.2%) had not been screened because they were yet to be advised or recommended by a doctor/nurse and about two-thirds 200(67.6%) had not been screened because they have never heard of cervical cancer.

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Table 4:7 Factors Influencing Screening Uptake among Respondents who have not been screened

Variables N=296	Frequency (%)	
Little understanding of cervical cancer	Yes	193(65.2)
	No	103(34.8)
Screening is painful	Yes	133(44.9)
	No	163(55.1)
Not thinking of being at risk	Yes	276(88.2)
	No	20(6.8)
Not knowing where to go for screening	Yes	221(74.7)
	No	75(25.3)
Cervical cancer screening is expensive	Yes	99(33.4)
	No	197(66.6)
No female health worker to perform the test at the nearest health facility	Yes	42(14.2)
	No	254(85.8)
Screening is for promiscuous women	Yes	161(54.4)
	No	135(45.6)
I am healthy	Yes	282(95.3)
	No	14(4.7)
Lack of husband approval	Yes	22(7.7)
	No	274(92.3)
Not advised or recommended by doctor/nurse	Yes	270(91.2)
	No	26(8.8)
I am still young to have the test	Yes	44(14.9)
	No	252(85.1)
My uterus and cervix have been removed (total hysterectomy)	Yes	4(1.4)
	No	292(98.6)
I have never heard of cervical cancer	Yes	200(67.6)
	No	96(32.4)

#### **4.8 Factors affecting uptake of screening among respondents who have been screened.**

Below shows frequency distribution of the factors that influence screening uptake among the women who had been screened for cervical cancer. Among the women who had cervical screening test: 15(88.2%) had cervical cancer screening test following advice by a healthcare professional; 11(64.7%) feel the screening test is painless; however 8(47.1%) of the women had the screening following a positive self-perceived risk; 15(88.2%) each took up the screening test because they feel the screening is for all women and following a health talk session while 9(52.9%) were encouraged by friends to have the test.

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**Table 4.8 Reasons given for Screening Uptake among Respondents who have been screened**

Variables N=17	Frequency(%)
Advised by a healthcare professional	Yes 15(88.2) No 2(11.8)
Screening is painless	Yes 11(64.7) No 6(35.3)
Think I may be at risk of having cervical cancer	Yes 8(47.1) No 9(52.9)
Screening is done in the health facility I go to when sick	Yes 6(35.3) No 11(64.7)
Cervical cancer screening is not expensive	Yes 7(41.2) No 10(58.8)
Screening is for all women	Yes 15(88.2) No 2(11.8)
My friend encouraged me	Yes 9(52.9) No 8(47.1)
My husband encouraged me	Yes 11(64.7) No 6(35.3)
Advised at a health talk	Yes 15(88.2) No 2(11.8)

#### 4.9 Association between age of respondents and knowledge of cervical cancer and knowledge of cervical cancer risk factors.

The mean age of the respondents with poor knowledge of cervical cancer is  $43.5 \pm 6.3$  years while that of respondents with good knowledge of cervical cancer was  $45.0 \pm 7.0$  years. There was no significant difference between these two mean ages ( $t=1.845$ ,  $p=0.066$ ). (Table 4.9)

Also, The mean age of the respondents with poor knowledge of the risk factors of cervical cancer was  $44.4 \pm 6.4$  years while that of the respondents with good knowledge of the risk factors of cervical cancer was  $43.7 \pm 6.6$  years. There was however no significant difference between mean age of the two groups ( $t=0.78$ ,  $p=0.436$ ). (Table 4.9)

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**Table 4.9 Cervical Cancer and risk factor Knowledge Score Categories**

Variable	Frequency (%)	Mean Age±SD	df	t-test	p-value
<b>Cervical cancer knowledge</b>					
Poor Knowledge	235(75.1)	43.48±6.330	311	1.845	0.066
Good Knowledge	78(24.9)	45.05±7.038			
<b>Risk Factor knowledge</b>					
Poor Knowledge	76(24.3)	44.38±6.375	311	0.78	0.436
Good Knowledge	237(75.7)	43.71±6.593			

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**Table 4.9 Cervical Cancer and risk factor Knowledge Score Categories**

Variable	Frequency (%)	Mean Age±SD	df	t-test	p-value
<b>Cervical cancer knowledge</b>					
Poor Knowledge	235(75.1)	43.48±6.330	311	1.845	0.066
Good Knowledge	78(24.9)	45.05±7.038			
<b>Risk Factor knowledge</b>					
Poor Knowledge	76(24.3)	44.38±6.375	311	0.78	0.436
Good Knowledge	237(75.7)	43.71±6.593			

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#### 4.10 Relationship between previous cervical cancer screening status and knowledge of cervical cancer and knowledge of cervical cancer risk factors.

Table 4.10 below shows the relationship between previous cervical cancer screening status of the respondents (classified as Yes and No) and the level of cervical cancer knowledge among the respondents. 9(11.5%) of the respondents who had previously been screened for cervical cancer had good knowledge of cervical cancer while only 8(3.4%) of those with poor knowledge had previously been screened for cervical cancer. There is a significant difference between these two proportions ( $p=0.011$ ). Also Table 4.12 below shows a relationship between cervical screening status of the respondents and knowledge of cervical cancer risk factors. About 6(7.9%) of the respondents with poor knowledge had cervical screening done while only 11(4.6%) of the respondents with good knowledge had a previous cervical cancer screening. However, there was no significant difference between these two proportions ( $p=0.295$ ).

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**Table 4.10 Relationship between cervical cancer screening status and knowledge of cervical cancer and its risk factors among respondents.**

Variables	Ever screened for cervical cancer			$\chi^2$	p-value
	No	Yes	Total		
	n (%)	n (%)	N		
Cervical cancer knowledge:					
Poor Knowledge	227(96.6)	8(3.4)	235(100)	6.504	0.011
Good Knowledge	69(88.5)	9(11.5)	78(100)		
Knowledge of cervical cancer risk factor					
Poor Knowledge	70(92.1)	6(7.9)	76(100)	1.095	0.295
Good Knowledge	226(95.4)	11(4.6)	237(100)		

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#### 4.11 Relationship between willingness to take up cervical cancer screening and knowledge of cervical cancer

Table 4.11 shows the relationship between respondent's willingness to take a cervical cancer-screening test (classified as willing and unwilling) and cervical knowledge scores of the respondents. 44(56.4)% of the respondents with good knowledge were willing to take the test and only 85(36.2)% of those with poor knowledge were willing to take the test. There is a significant difference between these two proportions ( $p < 0.05$ ). There is no significant relationship between knowledge of cervical cancer risk factor and willingness to take a cervical cancer screening test ( $p = 0.154$ ).

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**Table 4.11: Relationship between willingness to take up cervical cancer screening and knowledge of cervical cancer and its risk factors.**

Variables	Willingness to take a screening test?			$\chi^2$	p-value
	No	Yes	Total		
	n (%)	n (%)	N (%)		
<b>Cervical cancer knowledge</b>					
Poor Knowledge	150(63.8)	85(36.2)	235(100)	9.902	0.002
Good Knowledge	34(43.6)	44(56.4)	78(100)		
<b>Knowledge of cervical cancer risk factor</b>					
Poor Knowledge	50(65.8)	26(34.5)	76(100)	2.032	0.154
Good Knowledge	134(56.5)	103(43.5)	237(100)		

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#### 4.12 Association between cervical cancer screening and socio-demographic characteristics of respondents.

Table 4.12 shows the relationship between previous cervical cancer screening status of the respondents and their socio-demographic characteristics. Although there was a progressive increase in the proportions of the respondents who had previous cervical cancer screening across the three age groups, this showed no significant difference ( $p=0.271$ ). Similarly, there was no statistically significant association between previous cervical cancer screening status and the respondents' socio-demographic variables such as: ethnicity, Religion, Highest level of education, marital status, family setting, cadre at work, and average monthly income.

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#### 4.12 Association between cervical cancer screening and socio-demographic characteristics of respondents.

Table 4.12 shows the relationship between previous cervical cancer screening status of the respondents and their socio-demographic characteristics. Although there was a progressive increase in the proportions of the respondents who had previous cervical cancer screening across the three age groups, this showed no significant difference ( $p=0.271$ ). Similarly, there was no statistically significant association between previous cervical cancer screening status and the respondents' socio-demographic variables such as: ethnicity, Religion, Highest level of education, marital status, family setting, cadre at work, and average monthly income.

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**Table 4.12: Relationship between socio-demographic characteristics and uptake of cervical cancer screening among respondents who have ever been screened for cervical cancer**

Variables	Ever been screened for cervical cancer			$\chi^2$	p-value
	No	Yes	Total		
	n (%)	n(%)	N		
<b>Age group (years)</b>					
< 40	79(95.2)	4(4.8)	83	2.609	0.271
40 – 49	148(96.1)	6(3.9)	154		
>= 50	69(90.8)	7(9.2)	76		
<b>Ethnicity</b>					
Yoruba	268(95.4)	13(4.6)	281	2.104	0.147
Others	28(87.5)	4(12.5)	32		
<b>Religion</b>					
Christianity	234(94.4)	14(5.6)	248	0.110	0.740
Islam	62(95.4)	3(4.6)	65		
<b>Highest Level of Education</b>					
SSCE/Equivalent	21(95.5)	1(4.5)	22	0.424	0.935
OND	85(95.5)	4(4.5)	89		
HND/BSC	168(93.9)	11(6.1)	179		
Masters/PhD	22(95.7)	1(4.3)	23		
<b>Marital Status</b>					
Single	11(97.7)	1(8.3)	12	3.153	0.369
Married	259(94.2)	16(5.8)	275		
Widowed	18(100.0)	0(0.0)	18		
Divorced	8(100.0)	0(0.0)	8		
<b>Family setting</b>					
Monogamy	202(93.5)	14(6.5)	216	2.650	0.104
Polygamy	87(97.8)	2(2.2)	89		
<b>Cadre</b>					
Junior	99(96.1)	4(3.9)	93	0.716	0.397
Senior	197(93.8)	13(6.2)	210		
<b>Average monthly income (Naira)</b>					
< 40,000	82(94.3)	5(5.7)	87	0.028	0.986
40,000 - 90,000	180(94.7)	10(5.3)	190		
> 90,000					

**Table 4.12: Relationship between socio-demographic characteristics and uptake of cervical cancer screening among respondents who have ever been screened for cervical cancer**

Variables	Ever been screened for cervical cancer			$\chi^2$	p-value
	No	Yes	Total		
	n (%)	n(%)	N		
<b>Age group (years)</b>					
< 40	79(95.2)	4(4.8)	83	2.609	0.271
40 – 49	148(96.1)	6(3.9)	154		
>= 50	69(90.8)	7(9.2)	76		
<b>Ethnicity</b>					
Yoruba	268(95.4)	13(4.6)	281	2.104	0.147
Others	28(87.5)	4(12.5)	32		
<b>Religion</b>					
Christianity	234(94.4)	14(5.6)	248	0.110	0.740
Islam	62(95.4)	3(4.6)	65		
<b>Highest Level of Education</b>					
SSCE/Equivalent	21(95.5)	1(4.5)	22	0.424	0.935
OND	85(95.5)	4(4.5)	89		
HND/BSC	168(93.9)	11(6.1)	179		
Masters/PhD	22(95.7)	1(4.3)	23		
<b>Marital Status</b>					
Single	11(97.7)	1(8.3)	12	3.153	0.369
Married	259(94.2)	16(5.8)	275		
Widowed	18(100.0)	0(0.0)	18		
Divorced	8(100.0)	0(0.0)	8		
<b>Family setting</b>					
Monogamy	202(93.5)	14(6.5)	216	2.650	0.104
Polygamy	87(97.8)	2(2.2)	89		
<b>Cadre</b>					
Junior	99(96.1)	4(3.9)	93	0.716	0.397
Senior	197(93.8)	13(6.2)	210		
<b>Average monthly income (Naira)</b>					
< 40,000	82(94.3)	5(5.7)	87	0.028	0.986
40,000 - 90,000	180(94.7)	10(5.3)	190		
> 90,000					

#### 4.13 Association between socio-demographic characteristics of respondents and willingness to take up cervical cancer screening

Table 4.13 shows the relationship between socio-demographic parameters of respondents and respondent's willingness to take a cervical screening test. About 42.2% of the respondents below 40 years of age were willing to take the test, while 52.3% and 50.0% of respondents aged between 40-49 and greater than 50 years respectively, were willing to take the cervical cancer-screening test. There is no significant association between age and willingness to screen for cervical cancer ( $p = 0.412$ ). 48.7% of the Yoruba's were willing to take a screening test for cervical cancer while 53.6% from other tribes were willing to take the screening test. There is no significant association between ethnicity and willingness to screen for cervical cancer ( $p = 0.627$ ). 50.5% of the Christians expressed willingness to take a cervical cancer screening test while only 44.8% of the Muslims expressed willingness to take a cervical cancer screening test. There was no significant association between the relationship between religion and willingness to take a cervical cancer screening test. There was also no observed association between highest level of education, marital status, family setting, cadre, and average monthly income and willingness to take cervical cancer screening test.



**Table 4:13 Relationship between socio-demographic characteristics and willingness to be screened for cervical cancer among respondents**

Variables	Are you willing to take a screening test?			$\chi^2$	P-value
	No	Yes	Total		
	n (%)	n (%)	N		
Age (years)					
	< 40	37(57.8)	27(42.2)	64	
	40 – 49	63(47.7)	69(52.3)	132	1.775
	>= 50	33(50.0)	33(50.0)	66	
Ethnicity					
	Yoruba	120(51.3)	114(48.7)	234	2.36
	Others	13(46.4)	15(53.6)	28	
Religion					
	Christianity	101(49.5)	103(50.5)	204	0.579
	Islam	32(55.2)	26(44.8)	58	
Highest Level of Education					
	SSCE/Equivalent	11(64.7)	6(35.3)	17	
	OND	37(49.3)	38(50.7)	75	6.224
	HND/BSC	80(53.0)	71(47.0)	151	
	Masters/PhD	5(26.3)	14(73.7)	19	
Marital Status					
	Single	6(54.5)	5(45.5)	11	
	Married	113(48.9)	118(51.1)	231	3.765
	Widowed	10(66.7)	5(33.3)	15	
	Divorced	4(80.0)	1(20.0)	5	
Family setting					
	Monogamy	88(49.7)	89(50.3)	177	0.501
	Polygamy	42(54.5)	35(45.5)	80	
Cadre					
	Junior	46(56.8)	35(43.2)	81	1.704
	Senior	87(48.1)	94(51.9)	181	
Average monthly income (Naira)					
	< 40,000	38(55.9)	30(44.1)	68	0.967
	40,000 - 90,000	79(49.1)	82(50.9)	161	
	> 90,000				

#### 4.14 Association between exposures to risk factors among respondents and respondent's cervical cancer screening status

Table 4.14 shows that 7(20.0%) of the respondents who had a family member who had cervical cancer had a previous cervical cancer screening while only 10(3.6%) of the respondents who have family member with cervical cancer had a previous cervical cancer screening. This difference was found to be significant ( $p < 0.005$ ). Although more 7(7.2%) respondents who had never used alcohol than those who had ever used alcohol 10(4.6%) had previously been screened for cervical cancer, there was no significant difference between these two variables ( $p = 0.350$ ). Similarly, more respondents who are not currently smoking 3(14.3%) than those who are currently smoking (0%) had previously been screened for cervical cancer. This difference however was not significant ( $p = 0.444$ ). Variables such as age at sexual debut, number of times married and number of children showed no significant relationship with previous cervical cancer screening status.

**Table 4:14 Relationship between exposures to cervical cancer risk factors and willingness to screen among respondents.**

Variables	Are you willing to take a screening test			$\chi^2$	P-value	
	No	Yes	Total			
	n (%)	n (%)	N			
Do you have family member who has or has had cervical cancer	No	268(96.4)	10(3.6)	278	13.247	<0.005
	Yes	28(80.0)	7(20.0)	35		
Ever used alcohol	No	90(92.8)	7(7.2)	97	0.872	0.350
	Yes	206(95.4)	10(4.6)	216		
Currently smoking	No	18(85.7)	3(14.3)	21	0.587	0.444
	Yes	2(100.0)	0(0.0)	2		
Oral contraceptive use	No	227(95.4)	11(4.6)	238	1.166	0.280
	Yes	69(92.0)	6(8.0)	75		
Number of sexual partners	One	52(98.1)	1(1.9)	53	2.213	0.137
	Two or more	229(93.5)	16(6.5)	245		
Age at sexual debut (years)	< 20	184(95.3)	9(4.7)	193	1.105	0.293
	>= 20	97(92.4)	8(7.6)	105		
Numbers of times married	One	257(94.5)	15(5.5)	272	0.421	0.848
	Two or more	32(97.0)	1(3.0)	33		
Number of children	1 - 3	163(94.2)	10(5.8)	173	0.275	0.600
	4 and above	129(95.6)	6(4.4)	135		

#### 4.15 Relationship between exposures to risk factors among respondents and respondent's willingness to take a cervical cancer screening test

Table 4.15 shows the bivariate analysis of the relationship between exposures to risk factors among respondents and respondent's willingness to take a cervical cancer screening test. About 21 (65.6%) of a total of thirty-two respondents with family history of cervical cancer were willing to take the cervical cancer screening test while 108 (47.0%) of respondent who do not have a family history of cervical cancer reported willingness to take a cervical cancer screening test. There was a significant association between having a family member who has or had cervical cancer and willingness to take screening test for cervical cancer ( $p = 0.048$ ). There was no observed association between alcohol and oral contraceptive use, current smoking, number of sexual partners, age at sexual debut, number of times married and number of children among respondent and their willingness to take a cervical cancer screening test.

**Table 4.15 Relationship between exposures to risk factors among respondents and respondent's willingness to take a cervical cancer screening test**

Variables	Are you willing to take a screening test?			$\chi^2$	P-value	
	No (%)	Yes (%)	Total			
	n (%)	n (%)	N			
Do you have family member who has or has had cervical cancer	No	122(53.0)	108(47.0)	230	3.917	0.048
	Yes	11(34.4)	21(65.6)	32		
Ever used alcohol	No	30(42.3)	41(57.7)	71	2.822	0.093
	Yes	103(53.9)	88(46.1)	191		
Currently smoking	No	12(57.1)	9(42.9)	21	0.009	0.926
	Yes	0(0.0)	1(100.0)	1		
Oral contraceptive use	No	104(52.0)	96(48.0)	200	0.517	0.472
	Yes	29(46.8)	33(53.2)	62		
Number of sexual partners	One	18(47.4)	20(52.6)	38	0.144	0.704
	Two or more	107(50.7)	104(49.3)	111		
Age at sexual debut (years)	< 20	80(48.5)	85(81.5)	65	0.576	0.448
	>= 20	45(53.6)	39(46.4)	74		
Numbers of times married	One	117(51.8)	109(48.2)	226	0.284	0.594
	Two or more	13(46.4)	15(53.6)	28		
Number of children	1 - 3	68(48.9)	71(51.1)	139	0.606	0.436
	4 and above	64(53.8)	55(46.2)	119		

**Table 4:16 Relationship between factors influencing screening uptake and willingness to take up screening.**

A higher proportion of the respondents who had little knowledge of cervical cancer (58.4%) than those who had good knowledge of cervical cancer (25.0%) were willing to take a cervical cancer screening test. This difference in these two proportions was statistically significant ( $\chi^2=25.935$ ,  $p < 0.005$ ).

A total of 57.3% of the respondents who did not believe that cervical cancer screening test was painful were willing to take a cervical screening test while only 33.0% of the respondents who believed that the screening test is painful were willing to take the test. This difference was found to be significant ( $\chi^2=14.451$ ,  $p < 0.005$ ).

A total of (46.4%) who believed they were not at risk were willing to take the screening test, while 33.3% of the respondents who believed they could be at risk were willing to take the test. No significant association exists between these two proportions. ( $\chi^2= 0.597$ ,  $p= 0.440$ )

A higher proportion of the respondents who did not know where to go for a cervical cancer screening test (54.6%) than those who knew where to go for a cervical screening test (20.6%) were willing to take a screening test and this difference is significant ( $\chi^2=21.828$ ,  $p < 0.005$ )

A total of 51.9% of the respondents who believed cervical cancer screening was expensive were willing to take the screening test while, 43% who believed was not expensive were willing to take the test. No significant association exists. ( $\chi^2= 1.702$ ,  $p= 0.192$ )

Two thirds 66.4% of the respondents who did not believe that cervical cancer screening test was for promiscuous women were willing to take a cervical cancer screening test while only 29.4% of the respondents who believed that cervical cancer screening test was for promiscuous women were willing to take the test. The difference between these two proportions was significant ( $\chi^2=33.4$ ,  $p < 0.005$ ).

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A higher proportion of respondents 83.3% who believed they are not healthy were willing to take a screening test while, 45% of respondents who believed they are healthy were willing to take the test. No significant association exists. ( $\chi^2= 3.687, p= 0.055$ ).

A total of 46.7% of respondents who were not advised or recommended by a doctor/nurse to take screening were willing to take screening while, 36.8% who were advised were willing to take screening. No significant association exists. ( $\chi^2= 0.685, p= 0.408$ ).

A total of 54.2% of respondents who believed they are still young were willing to take screening test while 45% who did not believe they were too young were willing to take the screening test. No significant association exists. ( $\chi^2= 0.726, p= 0.394$ ).

A total of 46.5% who had not removed their uterus and cervix were willing to take a screening test, while none of the respondents who had removed their uterus was willing to take a screening test. No significant association exists. ( $\chi^2= 3.721, p= 0.054$ ).

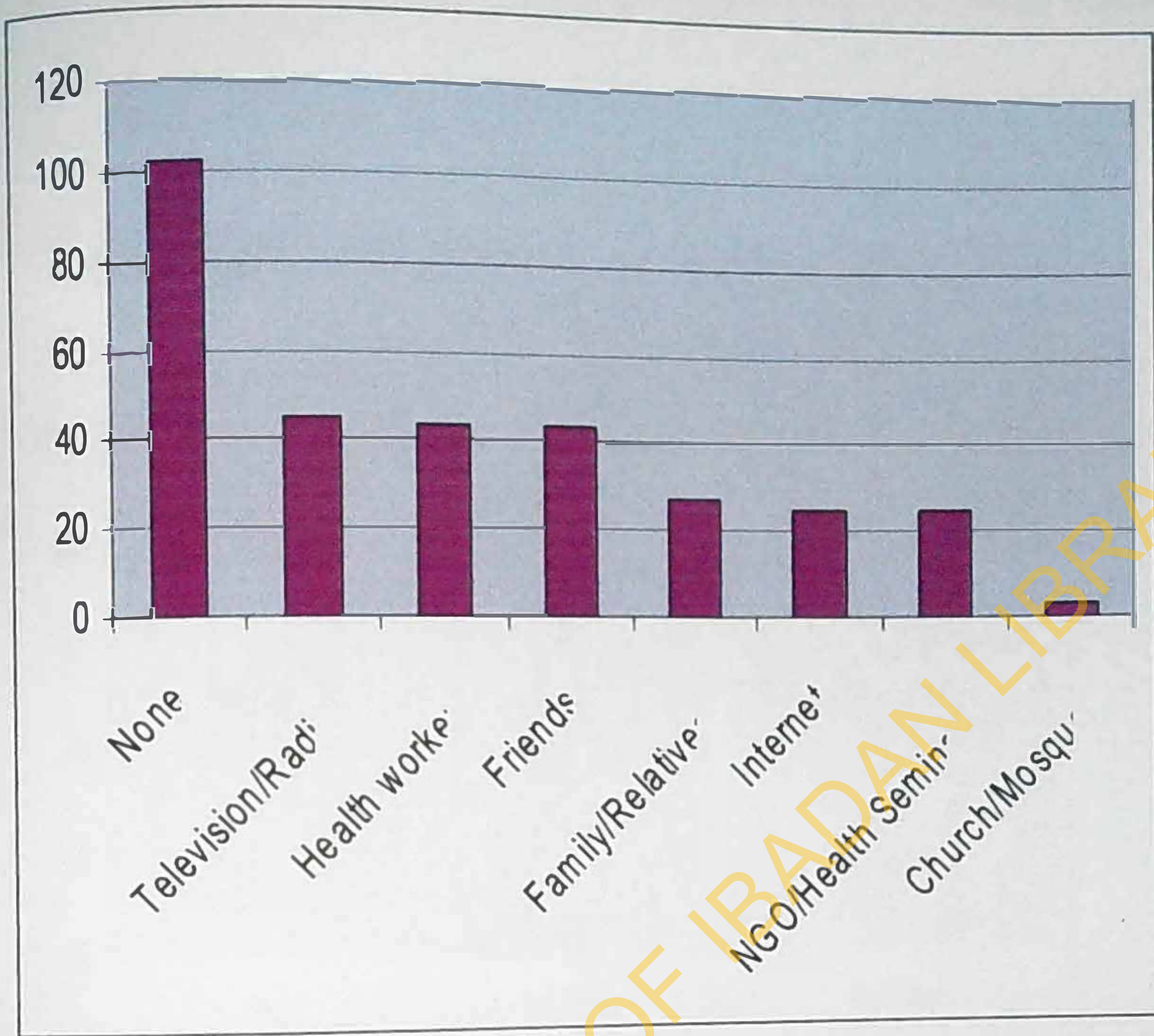
A significantly higher proportion of the respondents who reported that they had heard of cervical cancer screening test (58.0%) than those who reported that they had never heard of cervical cancer screening test (41.2%) were willing to take the test. The difference between these two proportions was significant. ( $\chi^2=5.594, p=0.018$ ).



Table 4.16 Relationship between factors influencing screening uptake and willingness to take up screening among respondents.

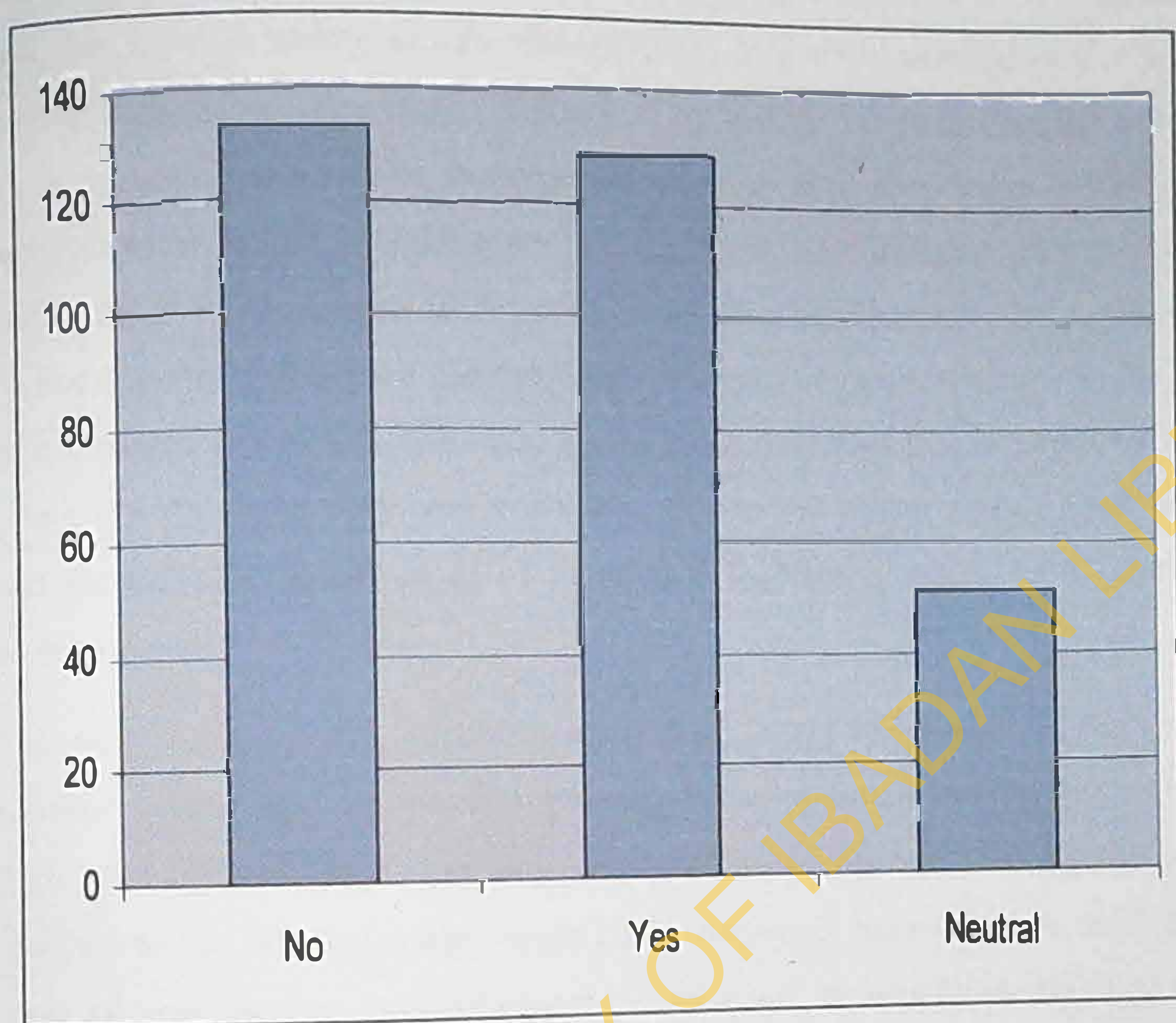
Variables	Are you willing to take a screening test			$\chi^2$	p-value
	No n (%)	Yes n (%)	Total N		
Little understanding of cervical cancer	No 69(75.0)	23(25.0)	92	25.935	<0.005
	Yes 64(41.6)	90(58.4)	154		
Screening is painful	No 56(42.7)	75(57.3)	131	14.451	<0.005
	Yes 77(67.0)	38(33.0)	115		
Not thinking of being at risk	No 6(66.7)	3(33.3)	9	0.597	0.440
	Yes 127(53.6)	110(46.4)	237		
Not knowing where to go for screening	No 50(79.4)	13(20.6)	63	21.828	<0.005
	Yes 83(45.4)	100(54.6)	183		
Cervical cancer screening is expensive	No 94(57.0)	71(43.0)	165	1.702	0.192
	Yes 39(48.1)	42(51.9)	81		
No female health worker to perform the test	No 110(51.9)	102(48.1)	212	2.931	0.087
	Yes 23(67.6)	11(32.4)	34		
Screening is for promiscuous women	No 37(33.6)	73(66.4)	110	33.436	<0.005
	Yes 96(70.6)	40(29.4)	136		
I am healthy	No 1(16.7)	5(83.3)	6	3.687	0.055
	Yes 132(55.0)	108(45.0)	240		
Lack of husband approval	No 126(54.5)	105(45.5)	231	0.702	0.402
	Yes 7(43.8)	9(56.3)	16		
Not advised or recommended by doctor/nurse	No 12(63.2)	7(36.8)	19	0.685	0.408
	Yes 121(53.3)	106(46.7)	227		
I am still young to have the test	No 122(55.0)	100(45.0)	222	0.726	0.394
	Yes 11(45.8)	13(54.2)	24		
My uterus and cervix have been removed (total hysterectomy)	No 130(53.5)	113(46.5)	243	3.721	0.054
	Yes 3(100)	0(0.0)	3		
I have never heard of cervical cancer	No 29(42.0)	40(58.0)	69	5.594	0.018
	Yes 104(58.8)	73(41.2)	177		

Figure 2: Shows the distribution of the respondents source of information on cervical cancer



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Figure 3: Shows the distribution of willingness to take a screening test among respondents.



## DISCUSSION, CONCLUSION AND RECOMMENDATIONS

## 5.1 Discussion

This study showed that the knowledge of cervical cancer symptom among the respondents was poor (75.1%). This can be ascribed to the relatively high number of respondents that indicated that they have no source of information 102(32.6%) about cervical cancer with only 45(14.4%) getting their information from TV/Radio. This is slightly lower than the outcome of a previous study by Igwilo *et al*, 2012 that reported a low level of knowledge (91.9%) of cervical cancer among women in Okada community in Ovia North-East local government of Edo state in Nigeria and of the 384 respondents in the study, none have been screened for cervical cancer. This may be due to poor sensitization and campaign programs on cervical cancer in the area. The low level of knowledge reported in this study is also lower than the value reported by Abiodun *et al*, 2014 where (93.9%) have very poor knowledge of cervical cancer among rural women in Odogbolu and Ikenne local government of OgunState in Nigeria while 3.9% had ever had cervical screening done.

This was in contrast to a Turkish study (Ertem, 2009), which assessed the level of awareness of Cervical Cancer Risk Factors and screening behavior among nurses; this showed an appreciably high level of knowledge regarding cervical cancer symptoms among the nurses. This can be ascribed to the fact that nurses being health personnel have a higher level of knowledge about most medical diseases, cervical cancer inclusive and are usually media of passing information to most women. A study among South African women (Pillay, 2010) showed a significantly higher level of knowledge about cervical cancer (80%) than was found in our study. This can be ascribed to the well-developed health system with well-established screening services and a higher level of awareness among respondents. Similarly a Nigerian study assessing awareness of cervical cancer among undergraduates show a comparatively higher level of knowledge about cervical cancer (71%) which can be ascribed to the fact that most awareness campaign are targeted at tertiary institutions with students who are believed to be sexually active.

This study showed that there was a good level of knowledge about cervical cancer risk factor 237(75.7%) which contradicts 45 (46.4%) level of knowledge about cervical cancer risk factors found among the Turkish Nurses. This shows that most of the respondents in this study are quite

Knowledgeable about risk factors and not symptoms which may affect uptake of screening services which indirectly can lead to late presentation of cervical cancer cases.

This study shows that 171(54.6%) of the respondents are aware that cervical cancer can be prevented. Of those that do, a significant majority cannot identify the various screening test and only 38(12.1%) of them could identify Pap smear as a screening test. The level of knowledge on cervical cancer screening is similar to that found by Gupta *et al.*, 2004) In assessing Cervical Cancer Screening among South Asian Women in Canada where he reported a low level of knowledge about the Pap test and a low prevalence of Pap testing behavior despite the availability of screening services. The level of awareness of Pap smear in this study is lower than the proportion reported in by Nwaozor and Oragudosi (2013). Nwaozor and Oragudosi 2013, in a study of the awareness and uptake of cervical cancer screening among women in Onitsha, Anambra state reported that about 36% of the respondents knew about Pap smear.

The result of screening knowledge of cervical cancer is significantly lower than that of Pillay, 2010 were approximately two fifth of the 70 respondents were unaware of Pap smear as a screening test for cervical. This is still ascribed to the higher level of health care and well established screening service in South Africa. A study by Ezem, 2007 on awareness and uptake of cervical cancer screening in a South-Eastern city in Nigeria showed a contradicting high level of awareness of 52.8% among its respondents. This can possibly be ascribed to an increased campaign on cervical cancer awareness and screening for residents in the study area.

This study shows an abysmally low (5.4%) uptake of cervical cancer screening among our respondents which is significantly lower than the level of uptake of cervical screening (75%) among Inuit women in Canada (Cerigo *et al.* 2013). This might be ascribed to Canada's well-developed health care system and improved literacy level. The same disparity was observed in a study by Ncube *et al.* 2015) where cervical cancer screening uptake was 66% which was also found to be higher than that found in our study. A Ghanaian study assessing the uptake of cervical cancer screening among college students showed a level of 12.0% which was more than

that found in our study. This can possibly be ascribed to youth friendly reproductive services targeted at girls in the reproductive age group especially in the tertiary institutions. Similar disparities in cervical cancer screening uptake were found in two Nigerian studies where uptake was found to be double what was found in this study with uptake of 7.1% (Ezem, 2007) and 5.1% (Udigwe, 2006). The increased uptake found in the latter study is due to the higher awareness of screening services among the respondents in the study.

This study shows a low level of (41.2%) willingness to be screened for cervical cancer among our respondents, which is slightly higher than the 30% willingness to screen for cervical cancer found by Aswathy *et al.*, 2012 of rural women in India. This can be ascribed to the lower literacy level among the respondents in the Indian study as well as the socio cultural environment in India. The level of willingness found in this study was comparatively lower than that found in a Ghanaian study among women attending antenatal clinic with a willingness rate of 96%. A similar observation was made with a comparison of willingness to screen for cervical cancer among women residing in two urban slums of in a major metropolis in Nigeria (Balogun *et al.*, 2012), showing they had a higher willingness of 73.3%.

This can be ascribed to a lower perception of being healthy among the latter than the respondents from this study hence the higher willingness to take a screening test for cervical cancer. The most reported risk factors for cervical cancer among respondents was 245 (82.2%) having two or more sexual partners, followed by 276 (88.2%) who reported having partners who seldom or never use condoms, 216 (69.0%) reported a history of alcohol use, while 193 (64.8%) and 198 (63.3%) reported age of sexual debut less than twenty years and a history of vaginal infection respectively. Several evidence points to the increased risk of cervical cancer which is almost three times higher in women who have had 6 or more sexual partners, compared with those who have had only one as well as around doubled in women who first had sexual intercourse aged 14 or younger, compared with those who did so aged 25 or older (ICESCC 2009). This risk is also higher for women with a history of sexually transmitted infections (STIs) especially with Chlamydia trachomatis (Jensen *et al.*, 2014). There is scientific evidence that STIs causes immune-suppression allowing infection with Human Papilloma Virus (HPV). Hansen *et al.*

(2011) in his study reported that women with STI, in seeking treatment will screen for cervical cancer but this is unlikely in our respondents with low willingness to screen and low uptake of cervical screening services especially in the face of a health system with a poorly established cervical screening service.

Ertem, (2009) showed a proportionately similar exposure among Turkish nurses with 81.4% reporting multiple sexual partners, and 72.2% for early age of sexual debut when compared to values of 82.2% and 64.8%, respectively from this study. Respondents from this study reported a lower exposure of history of sexually transmitted diseases compared to the other study (63.3%). This can probably be ascribed to a cultural perception of reporting STI publicly. A Nigerian study by Ayinde *et al*, 2004 among female undergraduate shows a similar proportion of respondents reporting (5.1%) early age of sexual debut comparable with that found in this study while those that reported multiple sexual partner was lower (51.1%) than that found in our study.

This is probably ascribed to a possible lower number of sexually active respondents. Multiple sexual partners was found to be a major risk factor noted in all study discussed, hence a need to educate young females on the dangers of multiple sexual partner.

In this study, socio-demographic characteristics such as age, ethnicity, religion, highest level of education, marital status, job cadre and average monthly income had no significant relationship with the utilization of cervical cancer screening among the respondents. (Abiodun *et al*, 2011) however reported that age of the respondents had a significant relationship with utilization of cervical screening among the respondents but marital status, occupation of respondents, level of education and average monthly income had no significant association with its utilization. (Abiodun *et al*, 2011). Also, in a previous study reported that age and level of education had significant relationship with utilization of cervical cancer screening services (Hyacinth *et al*, 2012).

Also, this study revealed that a significantly higher proportion of respondents who had family members previously diagnosed of cervical cancer were willing to take the screening test. This is probably due to the fact they have had close contact with those who had the disease and had

etter knowledge of the disease, thus influencing their health seeking behavior towards utilization of the screening test. Adekanle *et al* opined that an increased level of knowledge of the disease positively affects the uptake of cervical cancer screening test (Adekanle *et al*, 2011). A similar study done in Ibadan among antenatal care attendees also reported a significant association between level of awareness of cervical cancer and willingness to utilize the screening test. This study also reported that age of the respondents was not associated with willingness to utilize the screening test (Ndikome *et al*, 2011).

The study was limited to the number of Ministries Selected and the Out-stationed staff was not used because of difficulty in locating them. A few respondents had feeling of their privacy been violated but effort was made to reduce the problem through assurances that their responses was kept confidential.

Some women were difficult to assess because of some sensitive issues particularly on sexual practices and number of sexual partners, although a fair number responded freely to the question.

## 5.2 Conclusion

The study revealed that knowledge of cervical cancer signs and symptoms among respondents was very low, while the respondents had good knowledge of risk factors. This indicates that the women do not have indepth knowledge of cervical cancer and the inability to identify the signs & symptoms of cervical cancer will lead to the late presentation of the disease when the survival rate is low. Willingness to take a cervical cancer screening test and uptake of cervical cancer screening was equally low among female civil servants in Akure, Ondo State. Most of the respondents gave the following reason for not utilizing screening service; Feeling healthy, not thinking of being at risk, lack of recommendation by doctor and lack of knowledge of facilities offering screening services. It is therefore recommended that a robust cervical screening service be integrated into national health system with increased effort at creating awareness about cervical cancer and the benefits of regular screening whilst ensuring that facilities offering cervical cancer screening are wide spread and known.



### 5.3 Recommendations

1. There is need to raise awareness about cervical cancer symptoms and available screening services especially location of such facilities through the mass media to increase the level of knowledge about cervical cancer.
2. The government can collaborate with NGO's to ensure that cervical cancer screening services is affordable and also health education programmes focusing on lifestyles that predispose to cervical cancer is given to them.
3. Cervical cancer screening should be incorporated into our primary health care delivery as is done in other countries in order to improve access to utilization of cervical cancer screening since PHC is the nearest health care delivery agency to the grassroots.

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APPENDIX II

Questionnaire No: \_\_\_\_\_

**DETERMINANTS OF THE UTILIZATION OF CERVICAL CANCER SCREENING SERVICES AMONG FEMALE CIVIL SERVANTS IN AKURE, ONDO STATE.**

**Respondent consent form**

I am Leye-Adebayo Salewa (Miss), a postgraduate student of Epidemiology and Medical Statistics, Faculty of Public Health, College of Medicine, University of Ibadan. In partial fulfillment of the requirements for the award of the degree of Masters of Science in Public Health, I am carrying out a research on the determinants of the utilization of cervical cancer screening services among female civil servants in Akure, Ondo state. I plead with you to be truthful in your responses endeavor to answer all questions applicable to you. The responses provided will be kept confidential and are strictly for academic purposes. Your name is not required and participation is voluntary. Thank you.

**SECTION A: SOCIO DEMOGRAPHIC CHARACTERISTICS**

Age (at last birthday)	
Ethnicity	<input type="checkbox"/> Hausa <input type="checkbox"/> Igbo <input type="checkbox"/> Yoruba <input type="checkbox"/> Others (specify) _____
Religion	<input type="checkbox"/> Christianity <input type="checkbox"/> Islam <input type="checkbox"/> Traditional <input type="checkbox"/> others .....
Highest level of education	<input type="checkbox"/> SSCE/Equivalent <input type="checkbox"/> OND <input type="checkbox"/> HND/BSC <input type="checkbox"/> Masters/PIID.
Marital status	<input type="checkbox"/> Single <input type="checkbox"/> Married <input type="checkbox"/> Widowed <input type="checkbox"/> Divorced
Average income in a month	
Cadre/grade/level	<input type="checkbox"/> Junior <input type="checkbox"/> Senior
Ministry	
Family setting	<input type="checkbox"/> Monogamy <input type="checkbox"/> Polygamy

**SECTION B CERVICAL CANCER KNOWLEDGE.**

Cervical cancer affects which of the following organs? (a) Vagina (b) Uterus (womb) (c) Cervix (mouth of the womb) (d) Stomach (e) Kidney

Answer the following statements by ticking (✓) as appropriate to you

	Strongly agree	Agree	I don't know	Disagree	Strongly disagree
Vaginal bleeding during sex is a sign of cervical cancer					
Persistent vaginal discharge that smells unpleasant is a sign of cervical cancer					
Do you think discomfort or pain during sex could be a sign of cervical cancer					
Do you think condoms reduce the risk of getting cervical cancer					
Do you think chances of curing cervical are better when disease is discovered at an early stage					
All women are at risk of cervical cancer					
Only promiscuous women are at risk of cervical cancer					
All sexually active women are at risk of cervical cancer					
Do you think menstrual periods heavier or longer than usual could be a sign of cervical cancer					
Do you think vaginal bleeding after menopause could be a sign of cervical cancer					
Cervical cancer is associated with starting sexual intercourse early in life					
Cervical cancer can be transmitted from one sufferer to another person					
Cervical cancer occurs only in elderly women					

PLEASE TICK/ FILL AS APPROPRIATE

24 What is the source of your information on cervical cancer? (you can pick more than one) (a) Health worker (b) Family/relative (c) friends (d) Internet (e) Church/mosque (f) Television/Radio (g) Others specify.....

**KNOWLEDGE OF CERVICAL CANCER RISK FACTORS**

Which of the following may cause cervical cancer:

		Strongly agree	Agree	I don't know	Disagree	Strongly disagree
25	Cervical cancer is caused by infection with a virus called human papilloma virus (HPV) transmitted through sexual intercourse					
26	Smoking					
27	Having a weakened immune system (e.g having HIV)					
28	Long-term use of contraceptive pill					
29	Having many sexual partners					
30	Sexually transmitted infections					
31	Having too many children					
32	Having a sexual partner who has other sexual partners					
33	Starting to have sex at young age (before 17years)					
34	Not going for screening					

**SECTION C: SCREENING KNOWLEDGE AND WILLINGNESS.**

Answer the following statements by ticking (v) as appropriate to you

35	Can cervical cancer be prevented? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know (If no, skip to question 36)		
36	<p><b>If yes, what are the ways cervical cancer can be prevented?</b></p> <p>a) Early detection by cervical cancer screening test</p> <p>b) Avoid multiple sexual partner</p> <p>c) Avoid smoking</p> <p>d) Avoid contraceptive pills</p> <p>e) others</p> <p>_____</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know	
37	<p><b>Which of the following is cervical cancer screening test?</b></p> <p>a) Pap smear test</p> <p>b) Visual inspection with Acetic Acid (VIA)</p> <p>c) HPV DNA test</p> <p>d) Visual inspection with lugol's iodine (VILI)</p> <p>e) Others (specify)</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know	

38	Have you ever been screened for cervical cancer? <input type="checkbox"/> Yes <input type="checkbox"/> No (If No, go to question 42)
39	If yes, how many times have you been screened _____
40	If yes, which method of screening did you undergo? _____
41	If yes, how do you know about the screening? (a) Friends (b) media/internet (c) family (d) health personnel (e) others (please specify) _____
42	Are you willing to take a screening test? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know
43	Do you know centers that provide cervical cancer screening services? <input type="checkbox"/> Yes <input type="checkbox"/> No
44	At what interval is screening done? <input type="checkbox"/> Every year <input type="checkbox"/> Every 3 years <input type="checkbox"/> Every 5 years <input type="checkbox"/> I don't know
45	Do you think cervical screening is effective in preventing cervical cancer? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I don't know

### FACTORS INFLUENCING SCREENING UPTAKE

#### To be answered by those who have not been screened

What are the reasons why you have not been screened?

46	Little understanding of cervical cancer	<input type="checkbox"/> Yes	<input type="checkbox"/> No
47	Screening is painful	<input type="checkbox"/> Yes	<input type="checkbox"/> No
48	Not thinking of being at risk	<input type="checkbox"/> Yes	<input type="checkbox"/> No
49	Not knowing where to go for screening	<input type="checkbox"/> Yes	<input type="checkbox"/> No
50	Cervical cancer screening is expensive	<input type="checkbox"/> Yes	<input type="checkbox"/> No
51	No female health worker to perform at the nearest health facility	<input type="checkbox"/> Yes	<input type="checkbox"/> No
52	Screening is for promiscuous women	<input type="checkbox"/> Yes	<input type="checkbox"/> No
53	I am healthy	<input type="checkbox"/> Yes	<input type="checkbox"/> No
54	Lack of husband approval	<input type="checkbox"/> Yes	<input type="checkbox"/> No
55	Not advised or recommended by my doctor/nurse	<input type="checkbox"/> Yes	<input type="checkbox"/> No
56	I am still young to have the test	<input type="checkbox"/> Yes	<input type="checkbox"/> No
57	My uterus and cervix have been removed ( Total hysterectomy)	<input type="checkbox"/> Yes	<input type="checkbox"/> No
58	I have never heard of cervical cancer	<input type="checkbox"/> Yes	<input type="checkbox"/> No

#### TO BE ANSWERED BY THOSE WHO HAVE BEEN SCREENED

You said you have been screened for cervical cancer, what made you go for screening?

59	Advised by a health care professional	<input type="checkbox"/> Yes	<input type="checkbox"/> No
60	Screening is painless	<input type="checkbox"/> Yes	<input type="checkbox"/> No
61	Think I may be at risk of having cervical cancer	<input type="checkbox"/> Yes	<input type="checkbox"/> No
62	Screening is done in the health facility I go to when sick	<input type="checkbox"/> Yes	<input type="checkbox"/> No
63	Cervical cancer screening is not expensive	<input type="checkbox"/> Yes	<input type="checkbox"/> No
64	Screening is for all women	<input type="checkbox"/> Yes	<input type="checkbox"/> No
65	My friend encouraged me	<input type="checkbox"/> Yes	<input type="checkbox"/> No
66	My husband encouraged me	<input type="checkbox"/> Yes	<input type="checkbox"/> No
67	Advised at a health talk	<input type="checkbox"/> Yes	<input type="checkbox"/> No

#### SECTION D: RISK FACTORS OF CERVICAL CANCER.

68	Do you use oral contraceptives? _____	<input type="checkbox"/> Yes	<input type="checkbox"/> No
69	If yes, for how long in all? _____		
70	Have you ever smoked cigarette? _____	<input type="checkbox"/> Yes	<input type="checkbox"/> No
71	Do you currently smoke cigarette? _____	<input type="checkbox"/> Yes	<input type="checkbox"/> No
72	Have you ever had sex? <input type="checkbox"/> Yes <input type="checkbox"/> No		
73	Age at first sexual intercourse? _____		
74	How many children do you have? _____		
75	How many times have you been married? (if married) _____		

76	How many wives does your husband have? (if married) _____
77	How often does your partner use protection (condom) during sexual intercourse with you (a) never (b) Rarely (c) Often
78	Have you ever taken alcohol? <input type="checkbox"/> Yes <input type="checkbox"/> No (if No, skip to question 80)
79	Have you consumed alcohol in the past 30days? <input type="checkbox"/> Yes <input type="checkbox"/> No
80	How many sexual partners have you ever had? _____
81	Have you ever tested for Human papilloma virus (HPV)? <input type="checkbox"/> Yes <input type="checkbox"/> No
82	If yes, did you test positive to the HPV? <input type="checkbox"/> Yes <input type="checkbox"/> No
83	Have you ever had any form of vaginal infection? <input type="checkbox"/> Yes <input type="checkbox"/> No
84	Do you have a family member (sister, aunt, mother, grandmother e.t.c) who has or has had cervical cancer? <input type="checkbox"/> Yes <input type="checkbox"/> No

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### APPENDIX III

NAMES OF MINISTRIES	NO OF WOMEN	Sample Size Allocated	Sampling Interval
1. Ministry of community development and co-operative services	31	$\frac{31}{678} \times 313 = 14$	$\frac{31}{14} = 2$
2. Ministry of Health	166	$\frac{166}{678} \times 313 = 77$	$\frac{166}{77} = 2$
3. Ministry of Culture and tourism	61	$\frac{61}{678} \times 313 = 28$	$\frac{61}{28} = 2$
4. Ministry of Education	93	$\frac{93}{678} \times 313 = 43$	$\frac{93}{43} = 2$
5. Ministry of Natural Resources	30	$\frac{30}{678} \times 313 = 14$	$\frac{30}{14} = 2$
6. Ministry of Agriculture	80	$\frac{80}{678} \times 313 = 37$	$\frac{80}{37} = 2$
7. Ministry of youth development and sport	31	$\frac{31}{678} \times 313 = 14$	$\frac{31}{14} = 2$
8. Ministry of Women Affairs	43	$\frac{43}{678} \times 313 = 20$	$\frac{43}{20} = 2$
9. Ministry of Employment and productivity	18	$\frac{18}{678} \times 313 = 9$	$\frac{18}{9} = 2$
10. Ministry of Information	83	$\frac{83}{678} \times 313 = 38$	$\frac{83}{38} = 2$
11. Ministry of Commerce	42	$\frac{42}{678} \times 313 = 19$	$\frac{42}{19} = 2$
TOTAL	678	313	313



**ONDO STATE GOVERNMENT**  
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**MINISTRY OF HEALTH**

AD. 4913/44

Leye-Adebayo Mary Salewa  
Faculty of Public Health,  
Department of Epidemiology and Medical Statistics,  
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23<sup>rd</sup> November, 2015.

**APPROVAL OF ETHICAL REVIEW COMMITTEE**

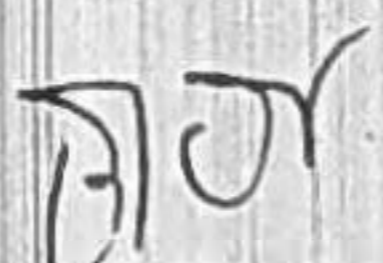
Thank you for submitting the research work on "Determinants of the Utilization of Cervical Cancer Screening Services among Female Civil Servants in Akure, Ondo State. The SHREC has reviewed and discussed your research protocol and found it to be in compliance with international guidelines and best practices and hence its approval

It is expected that the ethics committee be informed about the progress of the study, any revision in the protocol or extension of its duration.

However, the HREC has the right to recall its earlier approval if the research deviates from the stated aims and objectives.

Lastly, the findings and feedback of the study should be communicated back to the committee on completion.

Best regards.

  
Dr. E.T. Oni

**Chairman Research Ethics Committee**

