

**KNOWLEDGE, PERCEPTION, PATTERN OF UTILISATION AND
PREFERENCES RELATING TO THE ADOPTION OF CERVICAL
CANCER SCREENING AMONG FEMALE POSTGRADUATE
STUDENTS OF UNIVERSITY OF IBADAN**

BY

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Project submitted to

**Department of Health Promotion and Education
Faculty of Public Health
College of Medicine**

In partial fulfillment of the requirements for the award of the Degree of

MASTER OF PUBLIC HEALTH

(Health Promotion and Education)

Of the

UNIVERSITY OF IBADAN

MARCH, 2016

DEDICATION

This work is dedicated to Almighty GOD for His constant supply of grace that ensured the successful completion of this research. It is also dedicated to my mum, Mrs. Gladys I. Iluno for her consistent prayers, and encouragement and for believing in me at all cost.

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ACKNOWLEDGEMENT

My sincere and profound gratitude goes to God Almighty, who indeed saw an end even when there was not yet a beginning of the programme.

I would also love to appreciate the contributions of my supervisor, Dr. F.O Oshiname. His continued guidance, meticulousness and constructive criticism challenged me to bring about this great research work. Appreciation also goes to Prof. A.O. Adekunle of Department of Obstetrics and Gynaecology whose unceasing encouragement and motivations kept me going. His diligence and commitment were my road map.

Special thanks to Prof. Oladimeji Oladepo, the Head of Department, Health Promotion and Education and all the members of staff of the Department for the training, conscientious support and advice that shaped me. Their contributions each time I approached them are highly appreciated.

Thanks to my mum, Mrs. Gladys I. Iluno for her care, love, endless support and prayers throughout this programme. She was my biggest fan. Much gratitude goes to my siblings for standing by me all through the difficult times. To Isaac C. Attah, for his encouraging words. He was indeed a friend that stuck closer than a brother. My special appreciation to my treasure (Dr Nelson U. Onyeka) who gave me the wings on which I soared. He never allowed me to quit. Thanks to him for always being there for me. To Pastor and Deaconess Patrick David for standing with me in prayers throughout the duration of this research.

I sincerely appreciate the solidarity of all my classmates in the Department of Health Promotion and Education for their excellent ideas and contributions during the design and execution of this project. I have learnt a lot during this little interaction with all of them. I express my thanks to all the post graduate students of University of Ibadan who voluntarily participated in this research despite their busy schedule. Without them it wouldn't have been done. Special thanks go to all the authors and organisations whose articles, books and reports contributed immensely to the success of this work.

Adaobi Chidinma, ILUNO

ABSTRACT

Cervical Cancer (CC) is the commonest female genital tract cancer worldwide and one of the leading causes of death from cancer among women in developing countries. It develops mostly when one is infected with Human Papilloma Virus (HPV). Screening for CC has been shown to reduce the morbidity and mortality from CC, yet its uptake is low. Many women lack adequate knowledge about CC including its risk, symptoms and prevention. Studies have been carried out investigating several barriers that influence the uptake of Cervical Cancer Screening (CCS) among various populations. Yet the knowledge of post graduate students on CC, their screening practices, future intention to screen and their perspective regarding preferences for the delivery of CCS have not been well explored thus limiting the opportunity to plan appropriate educational and service interventions targeted at them. This study was designed to investigate the knowledge, perception, pattern of utilization and preferences relating to the adoption of cervical screening among female postgraduate students of university of Ibadan.

The study was a descriptive cross-sectional survey involving the use of multi-stage sampling technique to recruit 372 female postgraduate students in the hall of residence. A pretested semi structured, self-administered questionnaire with a 33-point scale knowledge scale was used for data collection. The CC and CCS knowledge scores 0-11, 12-23, 24-33 were categorized as poor, fair and good respectively. Descriptive statistics, Independent T-test and one-way ANOVA was used for data analysis at $p = 0.05$.

Majority (72%) of the respondents had poor knowledge on CC and CCS. Knowledge of CC and CCS was significantly associated with age, marital status and post graduate level. Only 12.4% were of the view that CC occurs in people who are sexually active while just above half (50.5%) of the respondents said that the benefits of CCS outweigh the stress of the screening procedure. Only 4.0% of the respondents have been screened for CC. Majority (86.3%) expressed their desire to be screened for CC if given the opportunity. Female doctors (73.2%) topped the list of health professionals respondents preferred to conduct the CCS. Reasons mentioned for choosing female doctors and nurses were for comfortability, confidentiality and religious reasons. Majority (70.7%) of the respondents preferred CCS service delivery done during antenatal clinic visit. This was followed by

65.9% who preferred “walk-in clinics in the hostel while 64.2% preferred the conduct of CCS services by religious bodies. Majority (68.8%) would go for CCS if they had good knowledge of what it entails.

The study shows poor knowledge on CC and CCS among female post graduate students and high willingness to utilize CCS services, thus the need for increased educational activities on CC and CCS and location specific screening programmes targeting postgraduate women in the University as this will significantly improve its level of uptake.

Keywords – Female postgraduate students, Cervical cancer, Cervical cancer screening.

Word Count – 462

CERTIFICATION

This is to certify that this study titled “Knowledge, Perception, Pattern of Utilisation and Preferences Relating to the Adoption of Cervical Cancer Screening among Female Postgraduate Students of University of Ibadan” was carried out by ILUNO, Adaobi Chidinma in the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan, Ibadan Nigeria.

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LIST OF ACRONYMS

CC = Cervical Cancer

CCS= Cervical Cancer Screening

DNA = Deoxyribonucleic acid

HBM = Health Belief Model

HPV = Human Papilloma Virus

IARC = International Agency for Research on Cancer

LEEP = Loop Electrosurgical Excision Procedure

LLETZ = Large Loop Excision of the Transformation Zone

NDHS = National Demographic Health Survey

NHS = National Health Services

OCs = Oral Contraceptives

RNA = Ribonucleic acid

STIs = Sexually Transmitted Infections

VIA = Visual Inspection with Acetic acid

VILI = Visual Inspection with Lugol's Iodine

WHO = World Health Organisation

OPERATIONAL DEFINITION OF TERMS

Female Post graduate students – female students who are undertaking a postgraduate study in the school at the diploma, masters and Postgraduate levels.

Poor knowledge – the knowledge of cervical cancer and cervical cancer screening scores ranging from 0-11

Fair knowledge – the knowledge of cervical cancer and cervical cancer screening scores ranging from 12-23

Good knowledge – the knowledge of cervical cancer and cervical cancer screening scores ranging from 24-33

Favourable perception – perception that is in line with scientific view

Unfavourable perception – perception that is not in line with scientific view

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Cervical Cancer (CC) is a major global public health issue. It is the most common female genital tract cancer worldwide and one of the leading causes of death from cancer among women in developing countries (WHO, 2012). In 2008, it was estimated that there were 529,409 new cases of the disease globally, out of which 274,883 fatalities occurred (WHO/ICO Information Centre, 2010). The report also shows that over 85% of those deaths occurred among women in developing countries (Gavi, the Alliance Vaccine, 2012). Available data in a study by Ferlay et al., (2010), shows that the occurrence of the disease in the same year under review was higher in Africa where there were 715,000 new cases on record with 542,000 fatalities.

According to World Health Organisation (2014), Nigeria has a population of 47.72 million women aged 15 years and older who are at risk of developing CC. Their current estimate indicates that every year, 14,089 Nigerian women are diagnosed with CC and 8,240 die from the disease. The report further states that about 3.5% of these women in the general population are estimated to harbour Human Papilloma Virus (HPV) 16/18 infection at any given time, and 66.9% of invasive cervical cancers are attributed to HPVs 16 or 18. It is projected that by 2025, there will be 22,915 new cervical cancer cases and 15,251 cervical cancer deaths in Nigeria (WHO, 2014).

Human Papilloma Virus infection can suppress the immune system without causing cancer. It has been noted these transient infections may cause temporary changes in cervical cells. If a cervical infection with a high-risk HPV type persists, the cellular changes can eventually develop into more severe precancerous lesions. If they are not treated, the lesions can progress to cancer (National Cancer Institute, 2014). Progression from HPV infection to invasive cancer is slow often taking decades. Therefore, cervical

cancer is usually not detected until many years after initial infection, often after the cancer has already advanced (Winer et al., 2006).

Gavi, the Alliance Vaccine, (2012), reported that CC is a malignancy of the cervix which develops mostly when infected with HPV. Women of reproductive age who are sexually active are at risk of developing CC, since they may have been exposed to HPV. Female postgraduate students in the University are in their reproductive age and may be predisposed to some risk factors that influence the development of CC. According to Oladepo et al., (2009), most students in tertiary institutions are sexually active and live within a social environment which promotes unhealthy lifestyles and risky health behavior (such as smoking and having multiple sexual partners) and these are important risk factors in the development of the CC. Some other risk factors they may be exposed to include early age of sexual contact, exposure to HPV infection, early marriage (below age 20 years), multiple sex partners, multiparity and lack of awareness of the disease itself (PATH/RHO 2012).

Various studies have shown that screening for CC has major advantages. According to Cancer Research UK, 2014, the exercise has an impact on the reduction of morbidity and mortality rates from CC. This screening exercise helps to identify the pre-clinical stage of the disease or its premalignant stages, and should be repeated at given intervals (FIGO 2009). Majority of women with CC, especially in developing nations, never got screened for the disease before they became symptomatic of it thereby reducing their chances of survival (WHO, 2014).

Cancer Research UK asserts that the detection of cervical cancer in its earliest stages is lifesaving and it has been estimated that cervical screening saves around 5,000 lives each year in the UK. Cervical screening can prevent at least, 45% of cervical cancers in women aged 30-39 years, 60% of cervical cancers in women aged 40-49 years and 75% of cervical cancers in women aged 50-69 (Cancer Research UK, 2014).

Despite several advantages of screening, screening practice is still generally poor, especially in developing countries (Oche et al., 2013). Studies have shown that many

women in these countries lack adequate knowledge about cervical cancer and the need for cervical screening. A study among antenatal clinic attendees in selected hospitals in Ibadan, Nigeria showed that only 0.6% were aware of cervical cancer screening (Ndikom et al., 2014). According to Abiodun et al., (2013), the level of awareness of cervical cancer and screening is low among adult women aged 20-64 years in Nigeria. The knowledge of its risk, symptoms and prevention were noted to be very poor. Consequently, the uptake of cervical screening services is quite low (Abiodun et al 2013). Female postgraduate students are as vulnerable to CC as other women. However, very little attention has been focused on them through research. This study therefore investigated the knowledge, perception, pattern of utilization and preferences relating to the adoption of cervical cancer screening among female postgraduate students in a tertiary institution in Nigeria.

1.2 Statement of Problem

Mortality and morbidity arising from CC remains a threat to the life of women. It has been identified as the most frequent cancer among women aged 15 and 44 years, who are sexually active and may be exposed to HPV (Goumbri et al., 2009). Young women within this age range, especially those of university age, are at higher risk as they tend to be sexually active and have higher numbers of sexual partners (Smith et al., 2008). A survey conducted by Ayinde et al., (2004), among students of a University in Nigeria which probed into their risk factors for neoplastic cervical lesions, awareness of cervical cancer, Papanicolaou's smear and its utilization, showed that the percentage of sexually active respondents was 81.5% and sexual exposure before the age of 20 years occurred in 51.7 %. Young women are poorly informed about CC and its associated risk factors. They are also unclear about the purpose of CC screening, and hold negative or inaccurate beliefs/attitudes about Pap testing (Mutya et al., 2007, Hoque et al., 2014).

Various studies indicate that CC screening services are poorly utilized and the awareness of the need for it is very low (Carr et al., 2004). A study conducted among female university students in South Africa found that 42.9% of the participants had heard of cervical cancer and only 9.8% of the participants had ever had a Pap smear test (Hoque et

al., 2009). Although the factors influencing uptake of CC screening have been widely studied among women, very few studies are focused on students with special reference to postgraduate students.

Another important reason for the much higher cervical cancer incidence in Nigeria is lack of effective screening programs aimed at detecting precancerous conditions and treating them before they progress. Interventions have been done to promote cervical cancer screening services such as simple and more comfortable procedures, greater awareness and even free screening services by some organizations. Yet the coverage of CCS is still poor in Nigeria.

Studies have been carried out investigating several barriers that influence the uptake of CCS such as its financial implications, accessibility, availability and poor knowledge among women of reproductive age. Few studies have reported women's preferences towards the delivery of cervical cancer screening.

It is presumed that educated woman are more informed on health issues and make greater use of health services (Zimmerman et al., 2014). The extent to which this is true among postgraduate students is yet to be explored. Unfortunately, their knowledge of CC, the current screening practices, future intention to screen and service preferences among postgraduates students in Nigeria have not been adequately investigated thus limiting the opportunity to plan appropriate educational and service interventions targeted at them. It is these gaps in knowledge that necessitated the design of this study.

1.3 Justification

Cervical cancer is one of the contributing factors to the high rate of maternal mortality and morbidity in developing countries like Nigeria. Almost nine out of ten cervical deaths occur in these less developed regions in the world (Cancer Research UK Stats and facts 2014).

However, cervical cancer is preventable among young women if precancerous lesions are detected and treated early. Additionally, the cost of cervical cancer screening is much less when compared the socio-economic burden of late treatment of cervical cancer. In spite of this, in poor-resource countries, women lack knowledge of cervical cancer and access

to its screening services. Therefore, there is urgent need for more research among these women in order to improve cervical cancer screening programme implementation.

This study has the potential of yielding evidence based information regarding the level of knowledge, perception, pattern of utilization and preferences relating to adoption of cervical cancer screening among female postgraduate students. Information such as this is needed to design interventions for enhancing the uptake of cervical cancer screening services. Therefore the study will add to the existing body of knowledge on CC and CCS among young women in institutions of higher learning.

1.4 Research Questions

1. What is the level of knowledge of female postgraduate students concerning cervical cancer screening (CCS)
2. What are the perceptions of female postgraduate students relating to CCS
3. What is the pattern of utilisation of CCS services among female postgraduate students
4. What are the CCS service delivery preferences among female postgraduate students
5. What is the intention of female postgraduate students in relation to the adoption CCS services

1.5 Broad Objectives

To Investigate the Knowledge, perception, pattern of utilization and preferences relating to adoption of cervical cancer screening among female postgraduate students of University of Ibadan

1.6 Specific Objectives

The specific objectives are to;

1. Assess the level of knowledge of female postgraduate students on CCS
2. Determine the perceptions of female postgraduate students concerning CCS
3. Determine the pattern of utilisation of CCS services among female postgraduate students
4. Identify CCS delivery preferences among female postgraduate students
5. Determine the intention of female postgraduate students in relation to the adoption CCS services

CHAPTER TWO

LITERATURE REVIEW

2.1 Conceptual Clarification

Cervical cancer is a disease in which malignant (cancer) cells form in the tissues of the cervix. The cervix is part of a woman's reproductive system within the pelvis. It is at the lower, narrow end of the uterus and leads the uterus to the vagina (National Cancer Institute, 2014).

Cervical Cancer begins in cells of the cervix and other organs of the body. Normal cervical cells grow and divide to form new cells as the body needs them. When normal cells grow old or get damaged, they die, and new cells take their place but sometimes, this process goes wrong. New cells form when the body does not need them, and old or damaged cells do not die as they should. The buildup of extra cells often forms a mass of tissue called a growth or tumor. Growths on the cervix can be benign (not cancerous) or malignant (cancerous), (National Cancer Institute, 2012).

Cervical cancer starts in cells on the surface of the cervix. Over time, it can invade more deeply into the cervix and nearby tissues. Cervical cancer cells can spread by breaking away from the cervical tumor. They can travel through lymph vessels to nearby lymph nodes. After spreading, cancer cells may attach to other tissues and grow to form new tumors that may damage those tissues (National Cancer Institute, 2012).

2.2 Signs and symptoms of cervical cancer

At onset, there are typically no symptoms, but symptoms may develop later, these include abnormal vaginal bleeding, yellowish vagina discharge, pelvic pain or pain during sexual intercourse. Though bleeding after sex may not be serious, it may also indicate the presence of cervical cancer (National Cancer Institute, 2014). In University of Benin Teaching Hospital between January 1993 and December 1998, patients presented to the oncology unit of the department of Obstetrics and Gynaecology with the following symptoms (Gharoro et al, 1999);

Table 2.1: Clinical Presentation of cervical cancer of patients in University of Benin Teaching Hospital between January 1993 and December 1998

Symptoms	Duration		Patients
	Range (months)	Mean	Number (%)
Irregular vaginal bleeding	2-60	12	118(69.41)
Post coital bleeding	2-40	10	98 (57.65)
Post-menopausal bleeding	0.5-6	2	48 (28.24)
Vaginal discharge	2-24	12	76 (44.71)
Lower abdominal pain	0.5-24	6	34 (20.0)

Source; (Gharoro et al, 1999)

Another retrospective study conducted at the department of Obstetrics and Gynaecology of the University of Ilorin teaching hospital among patients with confirmed cases of cervical carcinoma at the hospital from January 1990 to December 1999 reported irregular vaginal bleeding, vaginal discharge and post coital bleeding as the most common symptoms presented among the study participants (Ijaiya et al. 2005).

2.3 Risk factors for cervical cancer

Several risk factors increase the chance of developing cervical cancer. According to American Cancer Society (2014), women without any of these risk factors rarely develop cervical cancer. Although risk factors increase the odds of developing cervical cancer, many women with them do not develop this disease. When a woman develops cervical cancer or have pre-cancerous changes, it may not be possible to say with certainty that a particular risk factor was the cause. Some of these risk factors are behavioural and can be changed or avoided (e.g. smoking or human papilloma virus infection), while some cannot (such as your age and family history), American Cancer Society 2014). However, it is still important to know about risk factors that cannot be changed, because it's even

more important for women who have these factors to get regular Pap tests to detect cervical cancer early.

CDC, (2015), reported some risk factors of cervical cancer. These include:

- a. Early age at first sexual intercourse.
- b. Multiple sexual partners
- c. Multiple birth
- d. A male partner with multiple previous sexual partners

The risk factors listed below were mentioned by American Cancer Society (2014);

2.3.1 Human papilloma virus infection

The most important risk factor for cervical cancer is infection by 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 be spread from one person to another during skin-to-skin contact. One way HPV is spread is through sex, including vaginal, anal, and even oral sex. Doctors believe that a woman must be infected with HPV in order to develop cervical cancer. Although this can mean infection with any of the high-risk types, about two-thirds of all cervical cancers are caused by HPV 16 and 18.

2.3.2 Smoking

Women who smoke are about twice as likely as non-smokers to get cervical cancer. Tobacco by-products have been found in the cervical mucus of women who smoke. Researchers believe that these substances damage the Deoxyribosenucleic acid (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.

2.3.3 Immunosuppression

Human immunodeficiency virus (HIV), the virus that causes AIDS, 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 a germ) or those who have had an organ transplant.

2.3.4 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.

2.3.5 A diet low in fruits and vegetables

Women whose diets don't include enough fruits and vegetables may be at increased risk for cervical cancer.

2.3.6 Being overweight

Overweight women are more likely to develop adenocarcinoma of the cervix

2.3.7 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.

2.3.8 Having a family history of cervical cancer

Cervical cancer may run in some families. If your mother or sister had cervical cancer, your 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.

2.3.9 Having multiple full-term pregnancies

Women who have had 3 or more full-term pregnancies have an increased risk of developing cervical cancer. Ijaiya, (2005), in his study among women with confirmed cases of cervical cancer reported that the proportion of women with the disease increases as parity increases with higher proportion among grand multiparous women.

2.4 Prevention of Cervical Cancer

According to SALC report (2012), prevention of cervical cancer can be achieved in two ways: preventing HPV infection (known as primary prevention) or detecting and treating pre-cursors to cervical cancer, (known as secondary prevention).

Primary prevention of cervical cancer is based essentially on healthy lifestyles and vaccination against HPV (WHO 2012).

SALC, (2012), further stated that primary prevention which focuses on ensuring women protect themselves against HPV, recommends postponing sexual activity, decreasing the number of sexual partners and using barrier methods, such as condoms. For many reasons, primary prevention strategies have limited success: in part because women (and men) are not always in control of their sexual behaviour or their reproductive health decisions (CEDAW, 2000); barrier methods do not fully protect against HPV as skin-to-skin genital contact without penetrative sex is a well recognised mode of transmission (PATH 2011); and none of these strategies, even if effectively employed, guarantees protection against HPV.

According to SALC (2012), HPV vaccination is still in its infancy, with the first vaccine having been approved in June 2006. However, prevention of HPV infection through vaccination is the most effective primary prevention method available (WHO 2012). Two types of vaccines which protect against HPV infection are currently available on the market: one acts against HPV genotypes 6, 11, 16 and 18 (quadrivalent vaccine commonly called Gardasil) and the other against genotypes 16 and 18 (bivalent vaccine commonly called Cervarix). Trials have indicated that the two HPV vaccines are nearly 100% effective in protecting women from HPV types 16 and 18 which cause 70% of all cervical cancers (CDC, 2010). Both vaccines require three doses given over six months. The vaccines have been proven to remain effective for at least five years, but may prove to be effective for longer as further research is conducted. In addition, research is under way to determine whether fewer doses provide adequate levels of protection. (GAVI Alliance, 2012).

Secondary prevention of cervical cancer is by screening for precancerous lesions and early diagnosis followed by adequate treatment (SALC, 2012). Regardless of the possible efficacy of the vaccines, secondary prevention methods are critical in part, due to the lack of access to vaccines in Africa (Joanna, 2009)

The main techniques used are cytological screening of cervical cells and visual inspection of the cervix (WHO, 2015). SALC, (2012), included HPV testing as part of the screening methods. Pilot projects initiated in six countries 5 of the African Region and coordinated by WHO have shown the efficacy, safety and effectiveness of visual inspection as a method of screening (WHO, 2015).

Tertiary prevention of cervical cancer involves the diagnosis and treatment of confirmed cases of cancer.

Women who have an abnormal screening test generally undergo diagnostic testing, usually with colposcopy. Colposcopy involves examination of the vagina and cervix using a magnifying device with a powerful light source to identify any abnormal areas, highlighted through acetic acid or Lugol's iodine. If an abnormal area is seen on the

cervix, a biopsy will be done. For a biopsy, a tissue sample is removed from the abnormal area and sent to a pathologist to determine whether the abnormal area is pre-cancerous, cancerous, or not (American Cancer Society 2014).

The two primary treatment options for pre-cancerous cervical lesions are freezing off the abnormal area through cryotherapy or removal of tissue using loop electrosurgical excision procedure (LEEP), also called large loop excision of the transformation zone – LLETZ (WHO, 2011).

If detected early, invasive cervical cancer can be treated successfully. The type of treatment needed and its effectiveness is determined by the stage of the cancer, which measures how far the cancer has advanced and assists in determining the most effective treatment. Hysterectomy and radiotherapy are the recommended primary treatments for cervical cancer. For advanced disease, radiotherapy is frequently used for palliation of symptoms. Chemotherapy may also be used with hysterectomy and radiotherapy (FIGO 2009).

Palliative care is provided to patients when the disease has already reached an incurable stage (WHO 2015). According to WHO, palliative care addresses the needs of patients who are facing life-threatening illness and their families. It manages all aspects of the patient's wellbeing, including pain management and emotional and spiritual support. Palliative care focuses on increasing the patient's quality of life, not on treatment. One key component of palliative care in cases of advanced cervical cancer is the management of the immense pain associated with late-stage disease (WHO 2015).

Both the FIGO Cervical Cancer Guidance and the WHO Guide to Essential Practice recommend that opioid, non-opioid and adjuvant analgesics, particularly oral morphine, should be made available as part of comprehensive cervical cancer management programmes to address the pain experienced in progressive stages of the cancer (FIGO, 2009. WHO, 2006)

2.5 Cervical Cancer Screening

Screening was defined by the United States Commission on Chronic Illness (1957) as "the presumptive identification of unrecognized disease or defect by the application of tests, examinations or other procedures that can be applied rapidly". Therefore screening involves the use of methods to detect unrecognized health risks or diseases in order to permit timely intervention. Cervical screening is a way of preventing cervical cancer from developing. It is a test to check the health of the cervix (NHS, 2015). The tests look for pre-cancerous changes in the cervix that could develop into cervical cancer. If the abnormal tissue or cells can be removed, then the disease can be prevented from developing (WHO, 2015).

WHO pioneered the development of criteria for screening by Wilson and Junger, (1968), that have been the mainstay of research into and the application of screening ever since. Screening tests are usually applied on a large scale. They are used to distinguish apparently unaffected people from those who may have a disease, or may develop it (WHO, 2015). A screening test is not intended to be diagnostic. Some of the tests can also diagnose the disease by identifying cancer cells that are already present. Screening procedures are generally easier to perform and cheaper than diagnostic procedures. Their results require confirmation through definitive diagnostic tests; sometimes direct treatment is offered on the basis of a positive test (NHS, 2015). Even if the screening test is harmless, it can cause anxiety and the subsequent investigations and treatment can be hazardous. Ensuring the safety of screening is of importance because large numbers of individuals will be screened, creating a potential for many to be harmed by the process of screening (PATH, 2013).

Screening is based on three key principles:

- a. It is a process of selection with the purpose of identifying individuals who are at a sufficiently high risk of a specific disorder to warrant further investigation or sometimes direct action. It is usually a preliminary process to offering a diagnostic test and if required, treatment;

- b. It is systematically offered to a population of people who have not sought medical attention on account of symptoms of the disease for which the screening is being conducted. It is normally initiated by medical authorities and not following a patient's request for help on account of a specific complaint.
- c. Its purpose is to benefit the individuals being screened.

These principles bring with them implications for an ethical approach to those participating in the screening process, IARC 2005.

2.6 Types of Cervical Cancer Screening Test

2.6.1 Conventional Cytology

This is also referred to as Papanicolaou test (Pap test) or Smear test. Here, the physician collects the cells, smears them on a microscope slide and then apply a fixative. In the United States Pap smear screening is recommended starting around 21 years of age until the age of 65 (Moyer, 2012). Guidelines on frequency vary from every three to five years (Saslow et al., 2012). If results are abnormal, and depending on the nature of the abnormality, the test may need to be repeated in six to twelve months (The American College of Obstetricians and Gynecologists, 2009). If the abnormality requires closer scrutiny, the person may be referred for detailed inspection of the cervix by colposcopy. The person may also be referred for HPV DNA testing, which can serve as an adjunct to Pap testing. Additional biomarkers which may be applied as ancillary test with Pap test are evolving (Shidham et al., 2011).

Another method of Pap test is Liquid-based Monolayer Cytology. This involves placing the sample into a vial containing a liquid medium (ethanol or methanol) that preserves the cells. Once placed into the vial, the sample is processed at the laboratory into a cell thin-layer, stained, and examined by light microscopy. The liquid sample has the advantage of being suitable for high-risk HPV testing and may reduce unsatisfactory specimens from 4.1% to 2.6%. Proper sample acquisition is crucial to the accuracy of the test, as a cell that is not in the sample cannot be evaluated (Ronco et al. 2007).

According to SALC, (2012) report, Pap smear screening is technical, expensive and difficult to execute effectively in low resource settings. This is due to a number of

factors. First, individuals need to be trained in how to properly obtain a viable sample for testing. Second, all samples need to be refrigerated during transportation from the clinic to the laboratory. Third, expensive infrastructure is needed in terms of facilities and equipment to read and preserve the slides, and reading the sample requires highly-skilled professionals. Finally, in the event of a positive test result, the patient returns for a second visit, and depending on institutional protocol, may need another Pap smear, further diagnosis or treatment.

2.6.2 Human papillomavirus testing

The human papillomavirus (HPV) test detects the presence of human papillomavirus, a virus that can lead to the development of genital warts, abnormal cervical cells or cervical cancer. Human papillomavirus (HPV) infection is a cause of nearly all cases of cervical cancer (WHO, 2015, Walboomers et al., 1999). Most women will successfully clear HPV infections within 18 months. Those that have a prolonged infection with a high-risk type (e.g. types 16, 18, 31, 45) are more likely to develop Cervical Intraepithelial Neoplasia, due to the effects that HPV has on DNA (Cuschieri et al., 2005).

There are two types of tests to detect high-risk types of HPV: HPV DNA and HPV RNA (SALC, 2012). HPV DNA screening is highly recommended, but the current costs associated with this type of testing are significantly higher than for visual inspection methods (Alliance for Cervical Cancer Prevention, 2011). In HPV DNA testing, HPV samples are collected in the same way as Pap smears: a cotton swab or a small brush is used to collect several samples of cells from the cervix. Cells are collected from the visible part of the cervix as well as from inside the opening of the cervix. The samples are then placed in collection tubes and sent to a laboratory for analysis (FIGO, 2009).

Current innovation may make HPV DNA screening cost effective in low-resource settings. Rapid HPV DNA testing technology is emerging which requires only non-technical support and no electricity; this could overcome the cost and infrastructure needs of current HPV DNA testing (FIGO, 2009). It may also be possible for HPV DNA testing samples to be self-collected, (WHO, 2006) which would reduce the need for

medical personnel and permit women who are resistant to cervical examination by others to access screening services (FIGO, 2009).

2.6.3 Visual Inspection

According to SALC, (2012) reported that in areas where Pap smear screening is not available or affordable, visual inspection is recommended. There are two methods of visual inspection: visual inspection with acetic acid (VIA) and visual inspection with Lugol's iodine (VILI). Visual inspection of the cervix, using acetic acid (white vinegar; VIA) or Lugol's iodine (VILI) to highlight precancerous lesions so they can be viewed with the "naked eye", shifts the identification of precancer from the laboratory to the clinic (FIGO 2009). Such procedures eliminate the need for laboratories and transport of specimens, require very little equipment and provide women with immediate test results. As a screening test, VIA may perform as well as or better than cervical cytology in accurately identifying pre-cancerous lesions (Sherris et al., 2009). This has been demonstrated in various studies where trained physicians and mid-level providers correctly identified between 45% and 79% of women at high risk of developing cervical cancer (Sankaranarayanan, et al., 2005, WHO, 2010).

2.7 Timing of Cervical Cancer Screening

Different countries have different cervical cancer screening recommendations. In Europe, most countries suggest screening between the ages of 25-64. Screening is offered every 3 years from ages 25-49, every 5 years from ages 50-64 and in women 65+ only in those who have not been screening since age 50 or had recent abnormal results (European Cervical Cancer Association, 2015). In the United States, screening is recommended for women between ages 21-65, regardless of age at sexual initiation or other high-risk behaviors (Karjane, et al., 2013).

For healthy women aged 21-29 who have never had an abnormal Pap smear, cervical cancer screening with cervical cytology (Pap smear) should occur every 3 years, regardless of HPV vaccination status (FIGO, 2009). The preferred screening for women aged 30-65 is "co-testing", which includes a combination of cervical cytology screening

and HPV testing, every 5 years. However, it is acceptable to screen this age group with a Pap smear alone every 3 years. In women over the age of 65, screening for cervical cancer may be discontinued in the absence of abnormal screening results within the prior 10 years and no history high-grade lesions (Committee on Practice, *Bulletins Gynecology*, 2012).

This screening frequency is not possible in most low-resource settings. In these countries, decisions regarding screening frequency must be made based upon available resources. The greatest impact on cervical cancer reduction appears to result from screening women aged 30 to 39 years (Sankaranarayanan et al., 2007).

For VIA-based screening, the FIGO Cervical Cancer Guidance recommends a three-to-five year screening interval for women between the ages of 25-49 who have negative results. Given the link between HIV and cervical cancer, the FIGO Cervical Cancer Guidance recommends annual screening for HIV-positive women. The FIGO Cervical Cancer Guidance further recommends that women under 25 years of age should be screened only if they are at high risk for the disease, noting that women at high risk for cervical abnormalities are those who have had early sexual exposure, multiple partners, previous abnormal screening results, or are HIV-positive. The FIGO Cervical Cancer Guidance cautions that VIA is not appropriate for women over 50 years of age, who it recommends should be screened at five year intervals using cytology or HPV DNA testing (FIGO 2009).

HPV testing is not recommended for women below the age of 30 years (FIGO 2009). The FIGO Cervical Cancer Guidance recommends once or twice in a lifetime screening at age 35 and 45 years, with a confirmatory test for HPV-positive women being conducted either through VIA or Pap smear screening. The WHO Guide to Essential Practice states that the use of HPV DNA tests as the primary screening method is recommended for use only in pilot projects or other closely monitored settings. Replacing current screening approaches solely with the HPV DNA test has not yet been recommended by either FIGO or the WHO (FIGO 2009, WHO, 2012).

2.8 Awareness and Knowledge of Cervical Cancer Screening

A study done at Ibadan, Nigeria (Ayinde, 2004), designed at finding out the level of knowledge of female health workers about cervical cancer and the level of utilization of preventive measures showed that Knowledge about the condition was high among doctors, inadequate among nurses and poor among hospital maids. This is in keeping with a study on awareness of cervical cancer screening services (87%) by Udigwe, (2006), among practicing nurses in Nnewi, South East Nigeria, 75% in Nairobi, Kenya (Ombech et al., (2012), 90.5% in Sokoto Nigeria (Oche et al., 2013) and 76% in Qatar (Al-Meer et al., 2011). Eke et al., (2012), also found a high knowledge (71.5%) of cervical cancer screening in another study in Nnewi, South East Nigeria but among female workers (civil servants, teachers, bankers and mostly health workers). The same was also reported by Gharoro et al., (2006), in Benin Nigeria and Holroyd et al., (2003), in Filipino.

But this is in contrast with a study in Onitsha, South East Nigeria by Nwozor and Oragudosi, (2013), focused on the awareness of cervical cancer screening and uptake among women in Onitsha. The findings showed that 35.56% were aware of this test. The level of awareness of cervical cancer screening of 35.56% found in this study is also less than 52.8% from Owerri (Ezem, 2007), 69.8% from Ilorin (Aboyeji et al., 2004), 70% from Ibadan (Ayinde et al., 1998). It is just close to 39% reported in Ghana. (Adanu, 2002). The variations seen in Nwozor's study may be attributed to different classes of respondents used in the study. Studies using healthcare personnel (nurses, doctors, laboratory scientists) tend to report high awareness. In his study, respondents were drawn from the general population of women resident in Onitsha. This study also agrees with Ubajaka et al (2015) study of low knowledge (41.5%) among female teachers in secondary school in Nnewi North, South East Nigeria, 23% in Elmina Southern Ghana (Ebu et al 2015), 43.5% in Zaria Nigeria (Saad et al., 2013), 36.4% in Okada Edo State (Igwilo et al., 2012), 25.6% in Abakiliki Ebonyi state (Chinaka et al., 2012) and 0.6% among antenatal clinic attendees in selected hospitals in Ibadan, Nigeria (Ndikom et al., 2014).

Owoeye and Ibrahim, (2013), in a study among female students and staff in a tertiary institution in Niger Delta, the awareness of cervical cancer screening was higher amongst the students than staff, (56.2% versus 36%) there was however no significant difference in the level of awareness ($X^2 = 11.73, P=0.001$). 30(34.9%) and 32(37.2%) of staff heard about cervical cancer from a physician and TV/Radio respectively. The students also had physician as their most popular source of information.

2.9 Willingness to Utilise Cervical Cancer Screening

A study conducted in China (Jia et al., 2013), reported that almost 70% of the women expressed their willingness to participate in cervical cancer screenings. A significant difference was identified in age relative to women of different levels of willingness to undergo screenings ($P<0.01$) such that women older than 45 years were more willing to undergo cervical cancer screenings, but this is not in keeping with Ndikom et al., (2014), who reported no significant association between age of respondents and willingness to utilize cervical cancer screening ($P=0.834$). Jia et al., (2013) also reported that a significant difference was found in the educational levels of the participants with different levels of willingness ($P<0.01$); 75.5% of women who had achieved a secondary or higher education level were willing to undergo screenings, compared with 68.5% of women with lower educational levels.

Women with positive family histories of cancer were more willing to participate in screening activities than those with negative histories ($P<0.01$) and this supports Ndikom et al., (2014), whose study stated significant association between level of education and women's willingness to utilize cervical cancer screening services ($P=0.019$). Ndikom et al., (2014), in a study among antenatal clinic attendees in selected hospitals in Ibadan also reported 73.6% willingness to utilize cervical cancer screening services out of which 15.5% of the women indicated their awareness of where to go for cervical cancer screening. His findings also showed that there was a significant association between awareness and willingness to utilize cervical cancer screening services ($P=0.000$).

About half of the respondents in a study in Ghana by Abotchie and Shokar (2009), also stated that the women would be willing to obtain the cheaper alternative cervical cancer screening using visual inspection and mild acetic acid, with doctor's recommendation.

Nwozor and Oragudosi (2013), in their study reported that based on the reasons for not doing the test, 83.11% of the respondents admitted that if made available and affordable they would like to do the test. This corresponds with the result of another study conducted in Abakiliki, Nigeria with 88.9% level of willingness by women to allow cervical screening even in the absence of symptoms (Chinaka and Udejah 2012) while 62.5% indicated willingness to be screened in Afikpo South East Nigeria (Eze et al., 2012) which is almost similar with a study among undergraduates in University of Ibadan, Nigeria showing 68% willingness (Ayinde, 2004).

According to Nowozor and Oragudosi (2013), these high levels of willingness from different studies should rekindle hope that with robust public enlightenment campaign targeting women coupled with availability and affordability of Pap smear, the level of uptakes will significantly improve.

2.10 Utilisation of Cervical Cancer Screening

The best way to find cervical cancer early is to have regular screening with a Pap test (which may be combined with a test for human papilloma virus or HPV) -Committee on Practice, *Bulletins-Gynecology*, 2012. As Pap testing became routine in this country during the past half century, finding pre-invasive lesions (pre-cancers) of the cervix has become far more common than finding invasive cancer (Arulogun, 2012).

Screening programs such as those for cervical cancer are paradigmatic of the regulatory impulse represented by systematic and periodic check-ups. The ideal age for screening should be 30 - 40 years, which is the age when women are at highest risk, and also in the younger women especially the sexually active ones (Mutumba et al., 2006). Despite the several advantages of screening, low cervical screening practices are being recorded in Nigeria. Several studies in Nigeria have shown low utilization of cervical cancer among women across the reproductive age groups, marital status and even educational level. Ubajaka et al., (2015) reported 20.5% in his study in Nnewi North, South East Nigeria

which is in contrast with Eke et al., (2012) in his study among female workers in Nnewi, South East Nigeria. The study stated 9.8% utilization among the respondents who were aware of cervical cancer screening. This is almost the same with a study in Nnewi South East Nigeria of 5.7% (Udigwe, 2006), 1.4% in Ogun State Nigeria (Abiodun et al., 2013), and 1.78% in Onitsha, South East Nigeria (Nwozor and Oragudosi 2013). Oladepo et al., (2009) found 2.6% cervical cancer screening practice among Nigerian students in University of Ibadan.

Despite the high knowledge that was reported among female health workers, the proportion that utilizes cervical cancer screening services is still very poor. Arulogun, (2012), in her findings reported 34.6% among female nurses in University College Hospital Ibadan, Nigeria, while 32.7% was reported in Zaria, Nigeria (Saad et al., 2013). 10% uptake was reported among female health workers in Sokoto, Nigeria, despite the fact that 79.6% of the respondents were aware of the presence of cervical cancer within their immediate environment. Far much disappointing are reports of female health workers utilization in Abuja, 7.6% (Olaniyan et al., 2000), and very much lower in Ilorin Nigeria, 3% (Aboyeji et al., 2004).

In other African countries, poor utilization has been reported as well. 17.5% has been screened in Kirrum, Kenya (Everlyne et al., 2014), 14% in Ruvuma, Tanzania, 6.5% in Ethiopia, 19% in South Africa (James, 2011).

2.11 Factors Influencing Utilisation

Nigeria has not had a great deal of success in implementing effective cervical cancer screening till date. In Nigeria, screening for cervical cancer is an opportunistic procedure which is dependent on the woman's initiative and/or that of her health care provider. This inadvertently leads to inappropriate utilization of screening facilities and lack of follow-up of abnormal results. There is currently no mass screening program for the detection of cervical cancer in Nigeria. Services are only available in teaching hospitals and are not adequately utilized. Constraints against underutilization were found to be poverty, ignorance and system failure (Owoeye 2013).

Although there has been increased public interest in health promotion, early detection and preventive health care for adolescents, young people and adults of all age groups, yet there are significant barriers to accessing the health care system (Sanci et al., 2003). These include spatial accessibility, lack of reproductive health education among youths and women, and stigmatization by health workers Mashamba et al., 2002). Therefore, it is imperative to provide quality professional development for health professionals in adolescent and women health care (Sanci et al., 2003). Siahpush and Singh (2002), observed certain socio-demographic factors associated with underutilization of cervical cancer screening. These are ages under 30 and over 49 years, and being unmarried. Most female undergraduates are under 30 years of age (Arowojolu et al., 2002).

Arulogun, (2012), in a study among female nurses in University College Hospital (UCH), Ibadan, reported that the main reasons cited by the respondents who had never used cervical cancer screening services included lack of time 153(46.5%), fear of the result 42(12.8%), cumbersome procedure 36(10.9%), lack of awareness of where the test can be done 29(8.8%), cost consideration 27(8.2%), not sexually active 21(6.4%) and not knowing about the test 21(6.4%). Likelihood of going for screening was indicated among 409(81.0%) respondents. Significant others who reportedly can influence respondents' decision to go for screening in a multiple response question were husbands (58.1%), doctors (49.5%) and colleagues (48.3%). Some other barriers that was identified by Abiodun et al., (2013) were lack of interest (1.8%), lack of access to screening services (0.8%), and poor quality if services (0.5%). Ayinde et al., (2004), in his study among Nigerian undergraduates in University of Ibadan, identified as the most frequent reason for not having Pap smear to be lack of awareness about the test (64.1%). Just like other studies Ayinde reported that less frequent reasons were lack of knowledge of centres where the test could be done (16.0%), reluctance (9.5%) and cost (5.9%). Ayinde in 2003 also identified among health workers, a relatively older population, to have their major reason for not undergoing CCS as reluctance. He therefore recommended that reproductive health education about cervical cancer, sexually transmitted diseases and their prevention should be intensified in our high schools and higher institutions. But Owoeye and Ibrahim (2013), in a study stated that there was an association between awareness and practice of cervical cancer screening. This contrasts with an Enugu study

(Cyril et al., 2009) which recorded that increased awareness of Pap smear does not translate to its use.

2.12 Conceptual Framework

A conceptual framework is the presentation of the casual linkage of a problem among concepts believed to be related to a specific problem. Health study-related frameworks are developed to guide studies relating to health problem investigation. One of such well acknowledged models is Health Belief Model (McMillan and Schumacher, 2010; Anfara and Mertz, 2006). It is developed with the aim of providing a guide to Health Education research and practice (Anfara and Mertz, 2006). It is not meant to incorporate all factors of interest but rather to show only a small part of causal web selected to explain the relationships among some given variables of interest to study valued for predictability, integration of information or analogy as the case may be (Leedy and Ormrod, 2005; Creswell, 2007; Johnson and Christensen, 2008). For this research, the conceptual model that would be adopted is Health Belief Model (HBM).

2.12.1 Health Belief Model

The health belief model is a psychosocial model proposed by Rosenstock (1966) in Stanhope and Lancaster for studying and promoting the uptake of health services. It is most commonly used theory in health education and health promotion (Glanz, Barbara and Viswanath, 2008; Capenter, 2010). It was developed as a means to explain and predict behaviour.

The key variables in this study are demographic variables, knowledge variables, perceived severity of cervical cancer, perceived susceptibility to cervical cancer, perceived benefits of cervical cancer screening, perceived barriers to cervical cancer screening, likelihood of cervical cancer screening uptake, cues to action to utilize cervical cancer screening and self-efficacy, or the confidence in one's ability to take action to take action.

Perceived susceptibility in relation to the HBM indicates that knowledge and awareness about cervical cancer in women may not necessarily result in women attending cervical cancer screening services. If knowledge of cervical cancer screening is to be translated into action, (women accepting cervical cancer screening), each woman must perceive that she is susceptible to developing cervical cancer in her lifetime (perceived susceptibility). Secondly, the women must perceive that cervical cancer is a serious condition (perceived severity of cervical cancer disease) e.g., that cervical cancer is not easily treatable. Thirdly, she must perceive that there are benefits (perceived benefits) to CCS such as early detection and treatment of cervical cancer.

Finally, the woman must also perceive that the potential barriers to taking preventive actions, for example costs, are outweighed by potential benefits of taking preventive action, such as early detection and treatment of cervical cancer, which are beneficial for her health and life. Also a woman is more likely to attend for screening if she is confident that she can do so, is motivated to maintain her health (self-efficacy) and if there is strong influence of the mass media and opinion of significant others (cues to action). Below is a diagrammatic representation of the variables in this study used in the Health Belief Model.

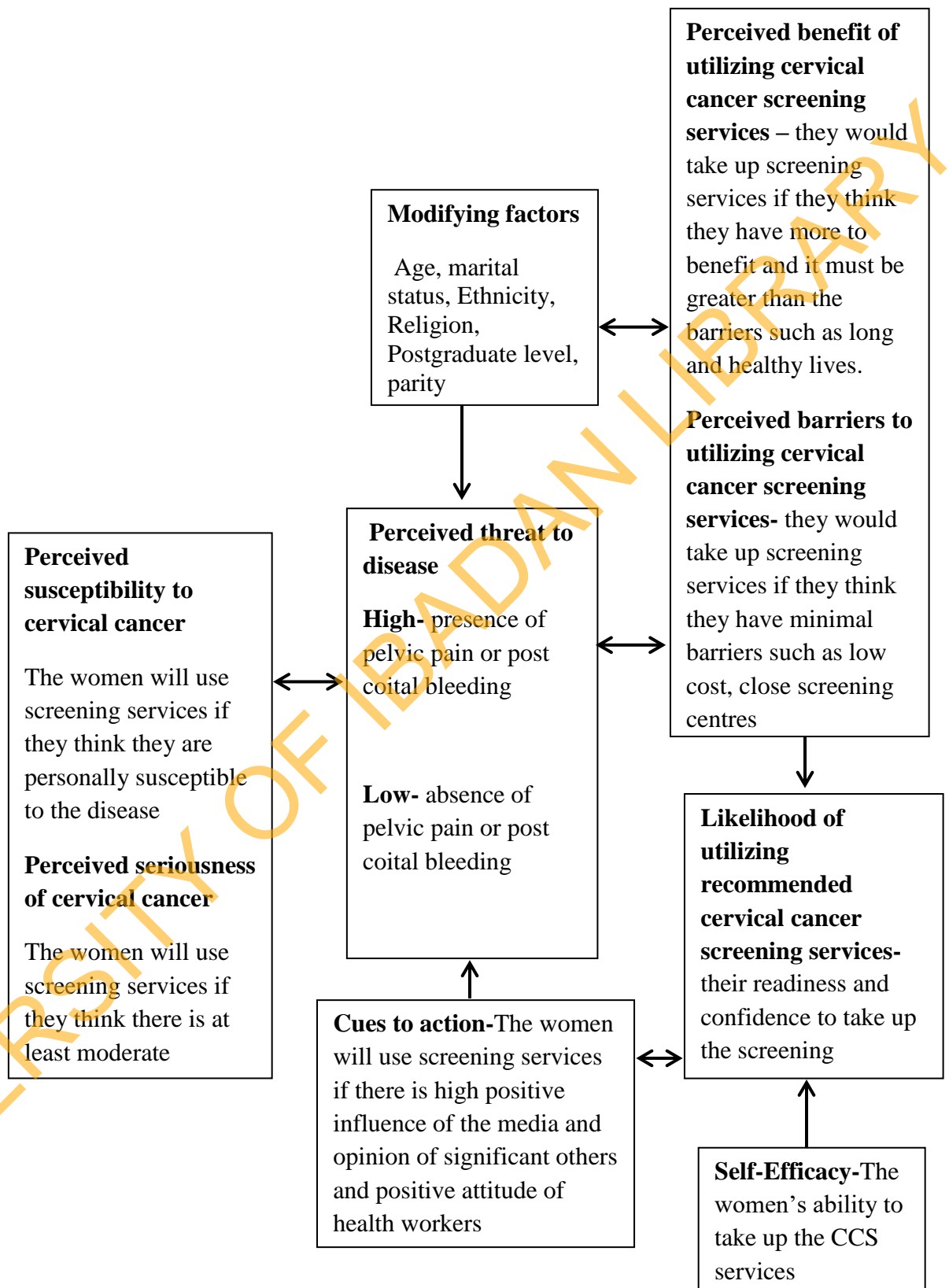


Figure 2.1: Health belief model adopted from Stanhope and Lancaster, 1996

CHAPTER THREE

METHODOLOGY

3.1 Study design

The descriptive cross-sectional study design was used for the study to investigate the knowledge, perception, practice and preferences relating to the adoption of cervical cancer screening among female post graduate students of University of Ibadan.

3.2 Study Variables

Independent Variables- The independent variables measured included: socio-demographic characteristics (age, postgraduate level, marital status).

Dependent Variables- The dependent variables assessed in the study included: knowledge, perception, pattern of utilization and preferences relating to adoption cervical cancer screening.

3.3 Description of study setting

The study was carried out at the University of Ibadan. The university was established in 1948 as an affiliate of University of London and as such regarded as the oldest tertiary institution in Nigeria. The University is located on the northern edge of the city of Ibadan (70 20'N, 30 50'E).

As at 2012/2013 session, University of Ibadan had over 12,000 student enrolment out of which 5,827 are postgraduate students. There are fourteen faculties and twelve halls of residence (for students) in the University. Out of the twelve halls of residence, two are exclusively for postgraduate students (New Postgraduate and Tafawa Balewa Halls), one accommodates a mixture of both undergraduate and post graduate students (Obafemi Awolowo Hall) and the others are for the undergraduate students only. The number of female postgraduate students within the postgraduate halls is presented in Table 3.1.

The University has residential and sports facilities for staff and students on campus. Other facilities found on campus include; Olympic-size swimming pool, lawn tennis and squash courts, 630, 000 volume Central Library, digital Library, bookshop, theatre Arts,

Conference centre, Zoological garden, Botanical garden, Fast-food complex and a Health centre. Religious houses of worship include Baptist Church, Chapel of the Resurrection, Chapel of Our Lady Seat of Wisdom and Mosque.

The University health centre also referred to as Jaja clinic is located at the centre of the school around the administrative building. It admits community members of the University and provides relevant health services such as minor treatments and referrals to the University College Hospital when necessary. The University College Hospital popularly called UCH is a federal teaching hospital located at the extension site of the University and it is open to all the members of the communities within and outside Ibadan including students of University of Ibadan. Cervical cancer screening services are not been provided within Jaja clinic yet, though opportunistic programmes have been carried out within the clinic. However, UCH provides cervical cancer screening services at a considerable cost.

Table 3.1

Distribution of students in the female postgraduate halls of residence of University of Ibadan for 2014/2015 academic session.

S/N	Name of Hall	No of female Postgraduates
1	New postgraduate hall (Abdulsalam Abubakar)	356
2	Tafawa Balewa	81
3	Obafemi Awolowo hall	185
Total		622

[Source: supervisors of the different residential halls, University of Ibadan (2014/2015) academic session].

3.4 Study Population

The study population consisted of female post-graduate students of University of Ibadan who are officially accommodated at the female halls of residence within the University.

3.5 Inclusion criteria

The study participants were female postgraduate students resident in the University female postgraduate hostels. In addition, female postgraduate students willing to provide verbal and written informed consent to participate in the study were involved in the study.

3.6 Exclusion criteria

All female postgraduate students who refused to provide informed consent to participate in the study were excluded from the study. Female postgraduate students living outside the university hostels and female undergraduate students were also not enrolled in the study.

3.7 Sample Size

According to Araoye (2004), the formula: $n = \frac{z^2 p(1-p)}{d^2}$ was used to calculate the sample size

n = estimated sample size

Z = standard normal deviation set at 1.96, which corresponds to the 95% confidence level.

P = 0.327 prevalence of cervical cancer screening reported by Saad Aliyu Ahmed et al (2015)

d = degree of accuracy desired, set at 0.05

$$n = \frac{z^2 p(1-p)}{d^2} = \frac{1.96^2 \times 0.327 \times 0.673}{0.05^2} = 338.16$$

A non-response rate of 10% of 338=34 was added up to the sample size calculated to make it 372.

Number of respondents interviewed in each hall was determined by

No of students accommodated in each hall × the sample size (n)

Total number of students in all the female PG halls

1) New PG Hall	$\frac{356}{622} \times 372 = 212.91 = 213$
2) Awolowo Hall	$\frac{185}{622} \times 372 = 110.64 = 111$
3) Tafawa balewa hall	$\frac{81}{622} \times 372 = 48.44 = 48$
Total	= 372

3.8 Sampling Procedure

A multi-stage sampling technique involving four stages was used to select 372 study respondents.

Stage 1

Proportionate sampling technique was used to determine the number of female postgraduate students interviewed from each of the 3 halls of residence which accommodate female postgraduate students. Details are shown in table 3.2

Stage 2

Proportionate sampling was used to determine the number of students that was interviewed per block. Details are shown in table 3.2

Stage 3

Rooms were selected in each block by balloting. A list of all the room numbers were written out, folded and placed in a box. One room number was picked randomly without replacement.

Stage 4

An eligible female student met alone in a room was purposely selected for interview. However, where more than one eligible student was met in a selected room, balloting was used to pick the student that was interviewed.

Table 3.2

Sampling of students in the female postgraduate halls of residence of University of Ibadan.

S/N	Name of Hall	No of female Postgraduates	Proportion of students to be selected from each hall	No of female postgraduate per block	Proportion of students to be selected from each block
1	New postgraduate hall (Abdulsalam Abubakar)	356	$\frac{356 \times 372}{622} = 212.63$ $= 213$	Block B—210 Block C---146	$\frac{210 \times 372}{622} = 126$ $\frac{146 \times 372}{622} = 87$
2	Obafemi Awolowo hall	185	$\frac{185 \times 372}{622} = 110.64$ $= 111$	Block A—121 Block B—56 Block C--- 8	$\frac{121 \times 372}{622} = 72$ $\frac{56 \times 372}{622} = 34$ $\frac{8 \times 372}{622} = 5$
3	Tafawa Balewa hall	81	$\frac{81 \times 372}{622} = 48.44$ $= 48$	Female block---81	$\frac{210 \times 372}{622} = 48$
Total	3	622	372		372

3.9 Methods and Instruments for Data collection

The design of the questionnaire was done based on reviewed literatures. It was organized into different sections drawn from each specific objective. The instrument consisted of seven sections labelled A-G (See appendix 1). The sections were as follow:

- a. Section A - Socio-demographic characteristics of the respondents;
- b. Section B - Sexual and Reproductive Health Experiences and Vulnerability;
- c. Section C - Awareness and knowledge of cervical cancer and cervical cancer screening;
- d. Section D - Perception towards cervical cancer and cervical cancer screening;
- e. Section E - Pattern of utilization of cervical cancer screening services;
- f. Section F - Service delivery preferences relating to adoption of cervical cancer screening
- g. Section G - Motivation to utilize cervical cancer screening

3.10 Validity and Reliability

In order to validate the instrument, relevant literature materials were reviewed and these together with the formulated objectives were used to guide the design of the instrument. The instrument was also reviewed by my research supervisor, other lecturers in the Department of Health Promotion and Education department and specialist in cervical cancer and its screening. Their comments and corrections were used to further enhance the quality of the instrument.

The reliability of the instrument was ensured by pre-testing it among 47 students of Ibadan Polytechnic. This institution is located within Ibadan and so shares the same characteristics with the students of University of Ibadan. It has its residential facilities within the institution and therefore offers their students similar social opportunities. The questionnaires were checked for completeness and serial number was given to each for easy identification and recall. The responses in each questionnaire were coded facilitated by use of a coding guide. A template was designed on the SPSS (version 18) for entering of the coded data. Reliability coefficient of the questionnaire was determined using the Cronbach's Alpha model technique of SPSS (version18). In this approach, a reliability coefficient not less than 0.5 was used to adjudge the questionnaire as being reliable. The pre-test showed reliability co-efficient of 0.95 implying that the instrument was reliable. Minor revisions were made on the instrument before it was finally used.

3.11 Training of Field Assistants

A vital step that was taken to promote the validity of data collected was the training of field research assistants. Four field research assistants was recruited and trained. The training focused on the objectives and importance of the study, the sampling processes, techniques for administering the study instruments, ethical issues involved in securing respondents' informed consent and general interviewing skills. The field research assistants were also involved in the pretest of the study instruments and this created an opportunity for them to practice the process of data collection.

3.12 Data Collection Procedure

Prior to the commencement of the study, official permission was obtained from the hall wardens and student officials in charge of the female postgraduate hostels and rapport was established with them to avoid any hitch. The quantitative data were collected using semi-structured questionnaires with the help of four trained female field research assistants. The questionnaires were self-administered. The administration of the questionnaires was done in the hall of residence in the evenings after lecture periods between the hours of 5 - 7pm when most students were likely to be in their rooms. Any room selected was visited and a participant was interviewed in each room. Consent of the participant was sought before the administration of the questionnaire. There was an explanation of the purpose of the research, the possible risks including remembrance of painful past experience, time that would be spent, and the benefits of the research. The questionnaires were collected immediately the participants were through and the field assistant cross checked them for completeness. Data collection was carried out for three weeks from 21st August 2015 to 11th September 2015.

3.13 Data Management and Analysis

The questionnaires was collated and edited by the researcher with the help of field assistants. The questionnaires were checked for completeness and a serial number (from 001 to 372) was given to each for easy identification and recall. The responses in each questionnaire were hand-coded by the researcher facilitated through the use of a coding guide. A template was designed on the SPSS (version 18) for entering of the coded data. The quantitative data was analysed using descriptive statistics (frequency, percentage, mean, median, mode etc.), Independent sample t- test and F-test (ANOVA) were used to compare the mean knowledge scores. The level of significance was set at $\alpha = 0.05$.

Knowledge scores on cervical cancer and cervical cancer screening were computed for each respondent using a 33-point scale. The maximum score for each question was 1 point. The knowledge scores were summed up to a composite knowledge score for each

respondent; the greater the score, the higher the knowledge. The cervical cancer and cervical cancer screening knowledge scores of 0-11, 12-23, 24-33 were categorized as poor, fair and good respectively.

The results of the analyzed data were presented using tables and charts. Copies of the questionnaires have been stored in a place that is safe from destruction by water, fire or unauthorized persons. They would be destroyed after the defense of this project.

3.14 Ethical Consideration

The ethical principles guiding the use of human participants in research was taken into consideration in the design and conduct of the study. Ethical approval was provided by the joint University of Ibadan and University College Hospital (UI/UCH) Ethics Review Committee (see Appendix II). Permission was obtained from the students' affair office and the hall wardens in charge of the various halls of residence. Participation in the study was made voluntary and informed consent was obtained from each participant involved in the study. Each participant was provided with information about the purpose of the study, its objectives, methodology, inconveniences that might be experienced and the potential benefits of the study. No identifier was required and all information provided was kept confidential.

Study limitations

Female off-campus students were excluded from the study and so this may affect the generalization of the results. However scientific steps were taken in the selection of study participants while carrying out the study so that the result constituted a fair reflection of the phenomenon at the University of Ibadan.

CHAPTER FOUR

RESULTS

4.1 Socio-demographic characteristics of Respondents

The results of the respondents' socio-demographic characteristics are presented in the table below this section.

There were more masters students (87.9%) represented than the rest such as Ph.D (8.9%), MPhil/Ph.D (1.9%), etc. The age range was between 20-52 years with the mean age of 27.3 ± 5.4 . 80.3% were young adults aged 20-29years, others who were between 30-39years and 40-49 years constituted 13.9% and 5.1% respectively.

Most (89.8%) were single while 9.9% were married. 91.1% were Christians. 77.4% of the respondents were Yoruba with the rest belonging to other ethnic group such as Igbo (13.3%), South south ethnic group (6.0%) and north central ethnic group (3.3%). The other details relating to the socio-demographic characteristics are shown in table 4.1 below.

Table 4.1: Socio demographic characteristics of respondents of respondents

Characteristics	No	%
<i>Age (in years) *, (n=330)</i>		
20-29	265	80.3
30-39	46	13.9
40-49	17	5.1
≥50	2	0.6
<i>Postgraduate levels (N=372)</i>		
Postgraduate Diploma	3	0.8
Masters	327	87.9
MPhil	2	0.5
MPhil/PHD	7	1.9
PHD	33	8.9
<i>Marital status (N=372)</i>		
Married	37	9.9
Single	334	89.8
Divorced	1	0.3
<i>Religion (N=372)</i>		
Christianity	339	91.1
Islam	33	8.9
<i>Ethnic group (n=367)</i>		
Yoruba	284	77.4
Igbo	49	13.3
North central ethnic groups	12	3.3
South South ethnic groups	22	6.0

*Mean age = 27.3±5.4, Median = 26, Mode = 25, Range = 20-52

4.2 Sexual and Reproductive Health Experiences and Vulnerability among Respondents

When asked the question “ever had sex” almost half (49.5%) of the respondents said ‘Yes’ while 50.5% said ‘No’. The age at first sex ranged from 8-33years with mean 21.6 ± 4 years. Majority (73.3%) had sex first when they were within the age range of 15-24. 13.5% said they cannot disclose their age at first sex. More details are shown in table 4.2.

On the question on sexual partnership, 17.8% said they currently have one male friend they have sex with while 2.2% said they have more than two male friends. 27.7% of the respondents have used condom, more than half (61.2%) use it rarely while 36.9% use it always. About 55.3% used condom the last time they had sex. This is shown in table 4.3 below.

Table 4.4 shows that 9.4% respondents have ever taken oral contraceptives while 1.3% has a family member who had cervical cancer.

Table 4.2: Respondents' sexual experiences and age at first sex

Sexual experiences	No	%
<i>Ever had sex (N= 372)</i>		
Yes	184	49.5
No	188	50.5
<i>Age at first sex* (n= 105)</i>		
5-14	6	5.7
15-24	77	73.3
25-34	22	21
<i>Other responses (n=267)</i>		
Never had sex/NA	188	70.4
I cannot remember	12	4.5
I cannot say/disclose	66	24.7
Raped	1	0.4

*Mean age at first sex = 21.6±4, Median = 22, Mode = 20, Range = 8-33

Table 4.3: Sexual partnership and pattern of condom use among respondents

Sexual partnership and pattern of condom use among respondents	N	%
<i>Number of sexual partners currently have sex with (n= 371)</i>		
None	297	80.0
1	66	17.8
More than 1	8	2.2
<i>Ever used condom(N=372)</i>		
Yes	103	27.7
No	269	72.3
<i>Type of condom used (n=103)</i>		
Male condom	95	92.2
Female condom	8	7.8
<i>Frequency of condom use (n=103)</i>		
Always	38	36.9
Rarely	63	61.2
Whenever my partner wants it	2	1.9
<i>Use of condom during the last sexual activity (n=103)</i>		
Yes	46	44.7
No	57	55.3

Table 4.4: Respondents' experiences relating to Sexually Transmitted Infections (STIs)

Experiences relating to Sexually Transmitted Infections (STIs)	No	%
<i>Ever had sexually transmitted infections (N= 372)</i>		
Yes	7	1.9
No	365	98.1
<i>Types of sexually transmitted infections ever experienced (n=6)</i>		
Candidiasis	3	50.0
Staphylococcus	2	33.3
I cannot remember	1	16.7
<i>Age when had sexually transmitted infections* (n= 6)</i>		
15-19		
20-24	1	16.7
25-29	4	66.6
	1	16.7

*Mean age when had STI = 22.2±3.8, Median = 21.5, Mode = 18^a, Range = 18-29

a. multiple modes exist. The smallest value is shown

Table 4.5: Possible predisposing factors among respondents

Possible predisposing factors among respondents	N	%
<i>Ever taken oral contraceptive n= 371</i>		
Yes	35	9.4
No	336	90.6
<i>Family member with history of cervical cancer N= 372</i>		
Yes	5	1.3
No	367	98.7
<i>Relationship with this family member with history of cervical cancer n= 5</i>		
Cousin	2	40
Mother's sister	1	20
Father's sister	1	20
Mother's cousin	1	20

4.3 Awareness and Knowledge of Cervical Cancer and Cervical Cancer Screening

The 372 respondents had heard of cervical cancer while 65.1% of them had heard of cervical cancer screening. Among all the reported sources of information on cervical cancer, internet (60.5%), television (58.6%) and newspapers (41.4%) were the most common. The least sources of information were workplace (12.9%), relatives (16.7%) and lecturers (19.9%). See table 4.6 for more details.

For the 65.1% that have of cervical cancer screening, their most sources of information were also television (55.4%), internet (50.4%), medical journals (40.5%) and friends (40.5%). The least sources of information on cervical cancer screening were church (3.3%), workplace (19%), relatives (16.5) and lecturers (20.5%). This is shown in table 4.7.

From table 4.8, more than half of the respondents said they don't know for each of the possible signs and symptoms of cervical cancer. The most reported known signs and symptoms were irregular vagina bleeding (42.5%) followed by abnormal vagina discharge (40.6%) and pain during sex (34.7%).

On the item on risk factors on cervical cancer, history of cervical cancer in the family (39%), human papilloma virus infection (38.7%), and longtime use of birth control pills (32.8%) were most mentioned. Details are shown in table 4.9.

Most (81%) of the respondents said they do not know whether visual inspection with acetic acid is a method of cervical cancer screening while 60.7% said that Pap smear is a method for cervical cancer screening. Most (79.7%) said cervical cancer screening detects the presence of cervical cancer. 69.8% of the respondents said cervical cancer screening should be done even in the absence of cervical cancer while 44.2% said Cervical cancer cannot be cured even if detected early. More details are shown in table 4.10.

When asked to list the types of cervical cancer screening test they know, 39% of the respondents mentioned Pap smear while 7% mentioned visual inspection with acetic acid

and 5% said co-testing (Pap smear test and human papilloma virus test). This is shown in figure 4.1.

Table 4.6: Respondents awareness of Cervical Cancer and sources of information on cervical cancer

Awareness related variables	Yes (%)	No (%)
<i>Ever heard of cervical cancer (N=372)</i>	372 (100)	
<i>Sources of information on cervical cancer (N=372)</i>		
Relatives	62 (16.7)	310 (83.3)
Friends	126 (33.9)	246 (66.1)
Lecturers	74 (19.9)	298 (80.1)
Workplace	48 (12.9)	324 (87.1)
Television	218 (58.6)	154 (41.4)
Internet	225 (60.5)	147 (39.5)
Conferences/seminar	118 (31.7)	254 (68.3)
Newspapers	154 (41.4)	218 (58.6)
Colleagues	97 (26.1)	275 (73.9)
Radio	135 (36.3)	237 (63.7)
Medical journals	148 (39.8)	224 (60.2)

Table 4.7: Respondents knowledge on possible signs and symptoms relating to cervical cancer

N = 372

Possible signs and symptoms related to cervical cancer	Yes (%)	No (%)	Don't know (%)
Irregular vagina bleeding	158 (42.5)*	15 (4.0)	199 (53.5)
Abnormal Vaginal discharge	151(40.6)*	15 (4.0)	206 (55.4)
Bleeding after sex	92 (24.7)*	23 (6.2)	257 (69.1)
Bleeding after menopause	69 (18)*	15 (4.0)	288 (78)
Abnormal stomach pain	112 (30.1)*	21 (5.6)	239 (64.2)
Pain during sex	129 (34.7)*	17 (4.6)	226 (60.8)
Rashes on the vagina	74 (19.9)	27 (7.3)*	271 (72.8)

***Correct responses**

Table 4.8: Respondents knowledge on the risk factors of cervical cancer

	N = 372		
Risk factors of cervical cancer	Yes (%)	No (%)	I don't know (%)
Being overweight	33 (8.9)*	21.2 (79)	260 (69.9)
Candida infection	119 (32.0)	19 (5.1)*	234(62.9)
Smoking	69(18.5)*	19.6 (73)	230(61.8)
Having a family member who had cervical cancer	145 (39.0)*	53 (14.2)	174 (46.8)
Stress	19 (5.1)	96 (25.8)*	257(69.1)
HIV infection	92 (24.7)*	36 (9.7)	244 (65.6)
Human Papilloma Virus infection	144 (38.7)*	9 (2.4)	219 (58.9)
Long time use of birth control pills	122 (32.8)*	22 (5.9)	228 (61.3)
Poor nutrition	42 (11.3)*	83 (22.3)	228 (66.4)
Chlamydia infection	95 (25.5)*	18 (4.8)	259 (69.6)

***Correct options**

Table 4.9: Respondents awareness of Cervical Cancer screening and their sources of information

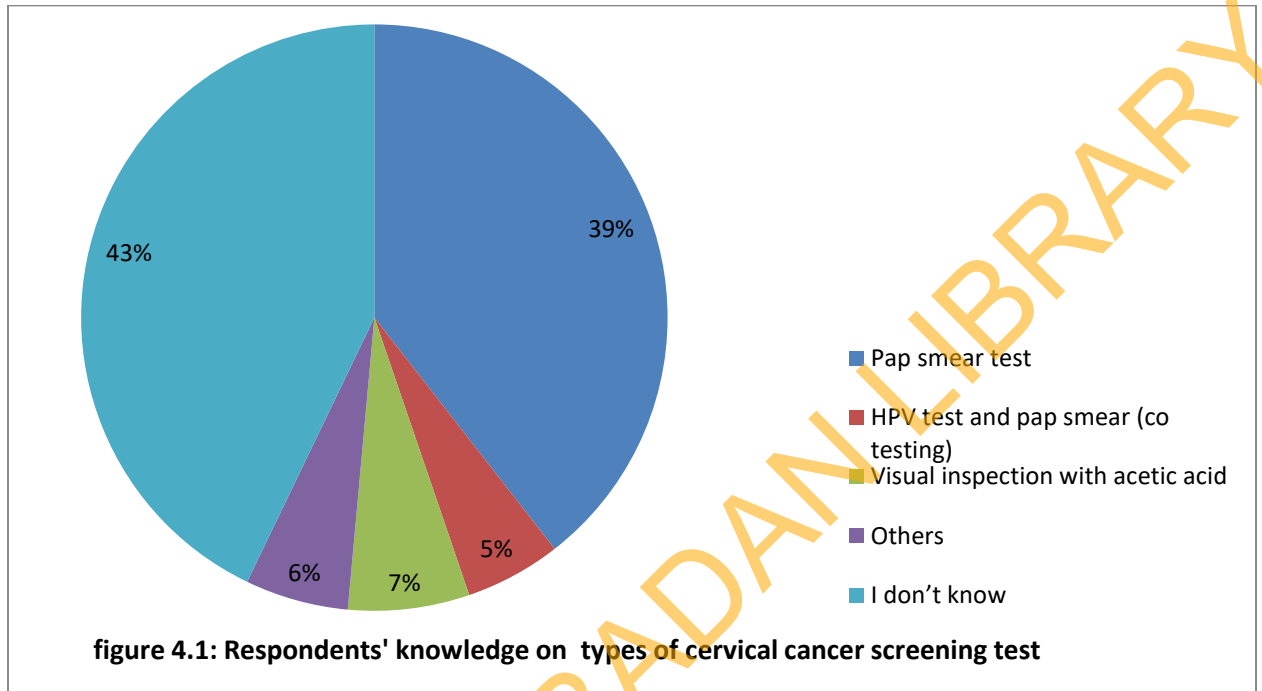
Awareness relating to cervical cancer screening	Yes (%)	No (%)
<i>Ever heard of cervical cancer screening (N=372)</i>	242 (65.1)	130 (34.9)
<i>Sources of information on cervical cancer screening (n=242)</i>		
Relatives	40 (16.5)	202 (83.5)
Friends	98 (40.5)	144 (59.5)
Lecturers	49 (20.2)	193(79.8)
Workplace	46 (19)	196 (81)
Television	134 (55.4)	108 (44.6)
Internet	122 (50.4)	120 (49.6)
Conferences/seminar	89 (36.8)	153 (63.2)
Newspapers	95(39.3)	147 (60.7)
Colleagues	63 (26)	179(74)
Radio	94(38.8)	148(61.2)
Medical journals	98 (40.5)	144 (59.5)
Church	8 (3.3)	234 (96.7)

Table 4.10: Respondents knowledge relating to cervical cancer screening

Statements related to cervical cancer screening	n = 242		
	Responses		
	True (%)	False (%)	Don't know (%)
Cervical cancer screening detects early changes in the womb	109 (45.0)*	20 (8.3)	113 (46.7)
Cervical cancer screening is used for treating cervical cancer	62 (25.6)	104 (43.0)*	76 (31.4)
Cervical cancer screening is a way of preventing cervical cancer	147 (60.8)*	47 (19.4)	48 (19.8)
Cervical cancer screening detects the presence of cervical cancer	193 (79.7)	6 (2.5)*	43 (17.8)
Pap smear test is a method for cervical cancer screening	147 (60.7)*	8 (3.3)	87 (36)
Cervical cancer screening must start from the age of 21	62 (25.6)	45 (18.6)*	135 (55.8)
Cervical cancer screening must be done yearly for women of all ages	106 (43.8)	39 (16.1)*	97 (40.1)
Cervical cancer screening should be done once only	11 (4.5)	142 (58.7)*	89 (36.8)
Cervical cancer cannot be cured even if detected early	21 (8.7)	107 (44.2)*	114 (47.1)
Regular exercise is one of the ways of preventing cervical cancer	54 (22.3)	34 (14.1)*	154 (63.6)
Cervical cancer screening should be done even in the absence of symptoms of cervical cancer	169 (69.8)*	22 (9.1)	51 (21.1)
Cervical cancer screening should be done only for older women aged 45 years and above	18 (7.5)	150 (62)*	74 (30.5)
Visual inspection with acetic acid is not a method for cervical cancer screening	19 (7.8)	27 (11.2)*	196 (81.0)

***Correct options**

n= 210



4.3.1 Categories of knowledge scores relating to Cervical Cancer and Cervical Cancer Screening among respondents based on knowledge scores

Respondents' mean knowledge score was 7.8 ± 6.1 . The respondents' knowledge scores ranged between 0 and 27. Scores 0 to 11 represented poor knowledge, scores 12 to 23 constituted fair knowledge, while scores 24 to 33 were categorized as good knowledge. The knowledge scores of the respondents are shown in table 4.11. Majority (72%) of the respondents had poor knowledge score while (7.7%) had fair knowledge score and just (0.3%) had good knowledge of cervical cancer and cervical cancer screening.

Table 4.11: Categories of Knowledge scores among the respondents

N = 372

Categories of knowledge scores in points	No	%
Poor (0-11)	268	72.0
Fair (12-23)	103	27.7
Good (24-33)	1	0.3

Mean knowledge score = 7.8 ± 6.1 , Median = 8, Mode = 0, Range = 0-27

4.3.2 Comparison of knowledge scores among respondents based on post graduate levels, age and marital status

From the independent T- test, the mean knowledge score of the respondents who were at PhD post graduate level was 9.98 while that of the respondents at the masters level was 7.58 with a P value of 0.016 which is less than 0.05. This shows that there is a significant difference between the mean knowledge scores of the PhD and masters respondents. Therefore there is a significant association between knowledge and post graduate level. Table 4.12 has more details.

The independent sample test showed a mean knowledge score of 9.79 among the married respondents and 7.64 among the singles with a P value of 0.040 which is less than 0.05. This means that there is a significant difference between the mean knowledge score of the married and single respondents. There is a significant association between knowledge and marital status. This is shown in table 4.13.

The ANOVA test in table 4.14 showed the mean knowledge score of 7.59 among the age 20-29 years, 10.83 among 30-39 years, 7.94 among 40-49 years and 13.0 among those \geq 50 years with P value of 0.007. 0.007 is less than 0.05 making the difference between the groups significant. Therefore there is a significant association between knowledge and age.

Table 4.12: Comparison of respondents mean knowledge scores by programme of study

Programme of study	No	Mean	Std. deviation	t	p value
Masters	329	7.58	6.090	-2.425	0.016
Ph.D	43	9.98	6.124		

Table 4.13: Comparison of respondents mean knowledge scores by marital status

Programme of study	No	Mean	Std. deviation	t	p value
Married	38	9.79	6.642	2.058	0.040
Single	334	7.64	6.045		

Table 4.14: Comparison of respondents mean knowledge scores by age

Programme of study	No	Mean	Std. deviation	F	p value
20-29	265	7.59	5.94	4.131	0.007
30-39	46	10.83	6.74		
40-49	17	7.94	6.55		
≥50	2	13.0	0.00		

4.4 Perception towards Cervical Cancer and Cervical Cancer Screening

Most (70.4%) disagreed that cervical cancer is a mild disease while 35.8% were undecided about cervical cancer leading to infertility. 12.4% agreed that cervical cancer occurs in people who are sexually active. See table 4.15 for more details

Most (73.4%) disagreed that cervical cancer screening is only for married women. 50.5% agreed that the benefits of cervical cancer screening outweigh the stress of the screening procedure. More details on the respondents' perception are shown in table 4.16 below.

Table 4.15: Respondents perception relating to Cervical Cancer

Perception towards Cervical Cancer	N= 372		
	Agree	Disagree	Undecided
Cervical cancer only occurs in people who are too sexually active	46 (12.4)	165 (44.4)*	161 (43.3)
Cervical cancer is a mild disease	12 (3.2)	262 (70.4)*	98 (26.3)
Cervical cancer screening can lead to infertility	101 (27.2)	138 (37.1)*	133 (35.8)
Cervical cancer occurs only in people who do not know God	6 (1.6)	273 (79.8)*	93 (18.5)

***favourable perception**

Table 4.16: Respondents perception relating to Cervical Cancer Screening

Perception towards Cervical Cancer Screening	N= 372		
	Agree	Disagree	Undecided
Cervical cancer screening is a waste of time; it doesn't stop it from killing someone	6 (1.6)	273(73.4)*	93 (25.0)
Cervical cancer screening is only for married women	9 (2.4)	273 (73.4)*	90 (24.2)
Pap smear test procedure is too discomforting	50 (13.4)	74 (19.9)*	248 (66.7)
The benefits of Cervical cancer screening outweigh the stress of the screening procedure	188 (50.5)*	35 (9.4)	149 (40.1)

*favourable perception

4.5 Pattern of Utilisation of Cervical Cancer Screening

Only 4% of the respondents have been screened for cervical cancer. Their commonly mentioned motivating factor for undergoing the cervical cancer screening test was the “rate of the increase of cervical cancer” (15.89%). Other factors mentioned were because it was “part of HIV testing” (10.5%), and “done routinely” (10.5%), etc.

Among those that have ever been screened, 46.7% said that they have been screened in the last 3 years. Pap smear test was the most (53.8%) mentioned type of cervical cancer screening test received.

7.7% of the respondents who have been screened said that the outcome of the screening test was positive. See more details in table 4.17

Table 4.17: History of involvement in cervical cancer screening test among respondents

History of involvement in cervical cancer screening test	N	%
<i>Ever been screened for cervical cancer (N= 372)</i>		
Yes	15	4.0
No	357	96
<i>Cervical cancer screening motivating factors (n=20)*</i>		
My aunt		
Wedding preparation	1	5
Church advice	1	5
It was free	1	5
Part of HIV testing	1	5
Because it killed Dora akunyili	2	10
Lots of information on newspaper	1	5
Done routinely and officially	1	5
Seminar	2	10
Curiosity/to be sure am not infected	2	10
Initiated by the employer in the office	1	5
Rate of increase/ dangers of cervical cancer	2	10
A friend's advice	3	15
Part of medical check up	1	5
	1	5
<i>Ever been screened for cervical cancer in the last 3 years (n= 15)</i>		
Yes	7	46.7
No	8	53.3
<i>Number of times screened for cervical cancer within the last 3 years (n= 7)</i>		
Once	5	71.4
Two times	2	28.6
<i>Place where last cervical cancer screening test was conducted (n=13)</i>		
Teaching hospitals	3	23.1
Government hospital	1	7.7
A private hospital/clinic	5	38.5
Health programme in school	1	7.7
Workplace/office clinic	2	15.4
Church	1	7.7
<i>Type of cervical cancer screening test received (n=13)</i>		
Visual inspection		
Pap smear test	2	15.4
Human papilloma virus (HPV) testing and pap smear	7	53.8
Don't know	1	7.7
	3	23.1
<i>Outcome of the cervical cancer screening test (n = 13)</i>		
Positive		
Negative	1	7.7
	12	92.3

***multiple responses**

4.6 Service Delivery Preferences relating to adoption of Cervical Cancer Screening

Most (86.3%) expressed their desire to be screened for cervical cancer if given the opportunity. The most preferred place for the screening mentioned was teaching hospitals (60.7%). Some mentioned “anywhere” (2.2%), and any available hospital (0.9%) as their most preferred places. Among the health professionals preferred to conduct the screening, female doctors 73.2% topped the list followed by any skilled health personnel (20.6%). Some mentioned male doctors (4%) and male nurses (0.3%) as their preferred health professional. More details are shown in table 4.18.

Reasons mentioned for choosing female doctors and nurses were for confidentiality (35.3%), confidentiality (9%), same sex (12.3%) and religious reasons (2.1%). Among those who chose male doctors and nurses, 4.3% said male doctors have better client relations while 0.4% said male nurse crack jokes while carrying out their duties. 22.15 said they will prefer any skilled health personnel because professionalism is more important to them and not the person’s gender while 1.7% said reliability of the test is their major concern. This is shown in table 4.19.

Among the list of preferred cervical cancer screening service delivery options, most (70.7%) said “inclusion of cervical cancer screening test during antenatal clinic visit. This was followed by 65.9% who said “walk-in clinics in the hostel where cervical cancer screening is done” while 64.2% said they preferred “rendering of cervical cancer screening services in religious centres/institution”. The least preferred option mentioned was inclusion of cervical cancer screening test during student entrance medical examination. See table 4.20 for details.

Table 4.18: Cervical Cancer screening related intentions and preferences among respondents

Cervical Cancer screening related intentions and preferences	N	%
<i>Desire to be screened for cervical cancer if given the opportunity (N= 372)</i>		
Yes	321	86.3
No	51	13.7
<i>Place where respondents would like to be screened (n= 321)</i>		
Teaching hospital	195	60.7
Jaja clinic	33	10.3
Government hospital	29	9.0
A private hospital	44	13.7
Air force hospital	2	0.6
A hospital with experienced personnel/equipment for the test	7	2.2
Any available hospital	3	0.9
Anywhere	7	2.2
Private standard laboratory	1	0.3
<i>Health professional preferred to conduct the cervical cancer screening (n = 321)</i>		
Female Doctor	235	73.2
Male doctor	13	4.0
Female nurse	6	1.9
Male nurse	1	0.3
Any skilled health personnel	66	20.6

Table 4.19: Reasons for respondents' choice of health worker to conduct the cervical cancer screening

n = 235

Health professional preferred	Reasons for preferences											%
	They know better (No / %)	I will be comfortable with her (No/ %)	For confidentiality (No/ %)	Male doctors have better client relations (No/ %)	Male nurses crack jokes while working (No/ %)	Professionalism/skill/ experience is more important (No/ %)	We are of same sex (No/ %)	Reliability of the test is the major concern (No/ %)	Religious reasons (No/ %)	No reason (No/ %)	Personal opinion (No/ %)	
Female doctor (n =153)	20 (8.5)	83 (35.3)	21 (9)	0	0	0	29 (12.3)	0	0	0	0	65.1
Male doctor (n=10)	0	0	0	10 (4.3)	0	0	0	0	0	0	0	4.3
Female nurse (n=5)	0	0	0	0	0	0	0	0	5 (2.1)	0	0	2.1
Male nurse (n= 1)	0	0	0	0	1 (0.4)	0	0	0	0	0	0	0.4
Any skilled health personnel (n=66)	0	0	0	0	0	52 (22.1)	0	4 (1.7)	0	3 (1.3)	7 (3)	28.1

Table 4.20: Respondents preferred cervical cancer screening service delivery options

Preferred cervical cancer screening service delivery options	N = 372	
	Yes (%)	No (%)
Inclusion of Cervical Cancer Screening test during antenatal visit	263 (70.7)	109 (29.3)
Inclusion of Cervical Cancer Screening test during HIV testing and counseling	225 (60.5)	147 (39.5)
Inclusion of Cervical Cancer Screening test during student entrance medical examination	167 (44.9)	205 (55.1)
Provision of “walk-in” clinics in the hostels where Cervical Cancer Screening test is done	245 (65.9)	127 (34.1)
Rendering Cervical Cancer Screening services in religious centres	239 (64.2)	133 (35.8)

4.7 Motivation to Utilise Cervical Cancer Screening

From table 4.21, most (68.8%) said they will go for cervical cancer screening once they have good knowledge of what it entails while 56.5% said they are willing to use cervical cancer screening service once the doctor recommends it. More than half (56.5%) also disagreed with the statement that they will not go for cervical cancer screening because they cannot have it. 53.8% were undecided about using cervical cancer screening services no matter the cost. 46.8% were also undecided about going for cervical cancer screening services without their husbands' consent.

Table 4.21: Perceived factors that would motivate respondents to utilise Cervical Cancer screening services

Perceived factors that would motivate respondents	N = 372		
	Yes	No	Undecided
I will go for Cervical Cancer Screening once I have good knowledge of what it entails	265 (68.8)	32 (8.6)	84 (22.6)
I will not go for Cervical Cancer Screening because I do not see the need for it	22 (5.9)	225 (60.9)	125(33.6)
I am ready to use Cervical Cancer Screening services no matter the cost	102 (27.4)	70 (18.8)	200 (53.8)
I will go for Cervical Cancer Screening once I see someone who has cervical cancer	18 (4.8)	220 (59.1)	134 (36.0)
I will not go for Cervical Cancer Screening because I cannot have cervical cancer	28 (7.5)	210 (56.5)	134 (36.0)
I am willing to use any Cervical Cancer Screening services once my doctor recommends it	210 (56.5)	38 (10.2)	124(33.3)
I will not go for Cervical Cancer Screening without the consent of my husband	88 (23.7)	110(29.6)	174 (46.8)

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Social demographic characteristics of respondents

The study assessed the knowledge, perception, pattern of utilization and preferences relating to the adoption of cervical screening among female postgraduate students in university of Ibadan. The age of the respondents ranged 20-52 years with the mean age of 27.3 ± 5.4 having the young adults (20-29 years) as the most (80.3%) represented. This result agrees with a study by Ndikom et al., 2014 among women attending antenatal clinics but in contrast with another study by Hoque et al., 2014 which reported lower mean age of 20.39 ± 1.71 years among students in a university in South Africa. This could be because his study participants were undergraduates who are younger in age than the post graduate students.

Most (89.8%) were single which is similar with studies done among students in tertiary institutions (Hoque et al., 2014, Owoeye et al., 2013 and Oladepo et al., 2009) but different from another study whose respondents were mostly married probably because they were selected from the health facility. The marital status of the respondents in this study suggests that education plays a significant role in delaying marriage. Few (9.9%) married respondents seen in this study can also suggest that most married students do not reside within the hostel where the study participants were selected. 91.1% were Yoruba and is similar with other studies conducted in south western region of Nigeria (Ndikom et al 2014 and Oladepo et al 2009).

5.2 Sexual and Reproductive health Experience and Vulnerability of respondents

Almost half (49.5%) of the students have had sex before and among them 20% were currently sexually active. This proportion is not as high as the result reported in other studies by Hoque et al., 2014, and Hoque et al., 2009. However, sexual activity has been reported to be higher among teenagers and young adults aged 15-24 than older adults >24

(Ajuwon et al 2012). Therefore this could be the reason for the low sexual activity reported in this study since the postgraduate students represented in this study are older in age with mean age of 27 ± 5 years than 20.7 ± 1.7 years reported among undergraduates in Hoque' study. The average age at first sex among the respondents was 21 years which is also in contrast with Hogue et al., 2014 who reported a lower mean age of 18.20 years. This also supports the high rate of sexual activity among teenagers in tertiary institution. Another study that showed high sexual activity among older adults was conducted among women attending antenatal clinics who were mostly married and pregnant (Ndikom et al., 2014).

Respondents that were sexually active as at time of study currently had 1 to 2 sexual partners out of which very few practice safe sex through the use of condom. 1.9% of the respondents have ever had sexually transmitted infections while some of them that have ever taken oral contraceptives. This depicts that there is an extent of exposure among the postgraduate students to some risk factors that can influence the development of cervical cancer.

5.3 Awareness and Knowledge of Cervical Cancer and Cervical Cancer Screening of respondents

The entire respondents have heard of cervical cancer but only 65.1% of them have heard of cervical cancer screening. This is in contrast with other studies with low awareness of cervical cancer and cervical cancer screening. Lower rate of awareness of cervical cancer and cervical cancer screening was reported by Ndikom et al., 2014, Igwillo et al., 2012, and Mbamara et al., 2011. But a study among students in tertiary institutions reported high awareness of cervical cancer (Oladejo et al., 2009). The higher level of awareness found in this study may be a function of the respondents' higher level of education since they were all in tertiary institution and undergoing higher academic training.

The media (Internet and Television) were most respondents' source of information on cervical cancer and its screening. This agreed with the findings from Lagos where most of the respondents got information on cervical cancer from the media (Awodele et al., 2011)

while school and workplace was reported as the highest source of information among health workers in a hospital in Sokoto (Oche et al., 2013).

The results also showed that the overall knowledge of cervical cancer risk factors, symptoms and cervical cancer screening was poor among the respondents with mean knowledge score of 7.8 ± 6.1 . Majority (72%) had poor knowledge while only 0.3 had good knowledge of the disease and its screening. More than half could not identify the possible signs and symptoms while only few could mention Human Papilloma Virus infection and history of cervical cancer in the family as risk factors. Also most of them do not know whether visual inspection with acetic acid is a method of cervical cancer screening whereas many (42%) said cervical cancer cannot be cured even if detected early. This poor knowledge has also been reported in other studies (Abiodun et al., 2013 and Ndikom, et al., 2012). Health workers have shown to have better knowledge. A study among respondents in the various health professions including doctors, pharmacists, nurses and laboratory technologists in Murtala Mohammed Specialist hospital, Kano Nigeria, showed that over 60% of the respondents were able to correctly identify all the important risk factors associated with cervical cancer, while a similar figure knew the important signs and symptoms of the disease (Kabir et al., 2005). The poor knowledge of the students in this current study might have resulted from lack of limited access to information on cervical cancer and its screening in tertiary institutions. Generally knowledge of cervical cancer and cervical cancer screening was significantly associated with age, marital status and post graduate level ($P= 0.007, 0.040$ and 0.016 respectively).

5.4 Perception towards Cervical Cancer and Cervical Cancer Screening of respondents

The respondents generally have favourable perception towards cervical cancer and cervical cancer screening. Most (70.4%) believed that cervical cancer is not a mild disease and also cannot occur only in people who do not know God. Majority also agreed that cervical cancer screening is not a waste of time and is not only for married women. Half of the respondents agreed that the benefit of cervical cancer outweigh the stress of the procedure but more than half (66.7%) were undecided about the comfortability of pap smear test procedures. Being undecided about the comfortability of the test procedure

could have been because majority (98%) have not been screened and therefore cannot make a definite decision about the procedure. This favourable perception towards the severity of the disease was also reported in a study by Oladepo et al., 2009, whose respondents perceived cervical cancer as “very serious disease,”

However, many (43.3%) were undecided about cervical cancer occurring only in people that are sexually active. This unfavourable perception could have been influenced by the poor knowledge demonstrated by the respondents.

5.5 Pattern of Utilisation among respondents

Only 4% of the respondents have ever been screened for cervical cancer. Their most mentioned motivating factor for cervical cancer screening test is the seriousness and severity of the disease which they might have gotten information about through their high exposure to the media. Cervical cancer screening is not practiced as a health seeking behaviour. The high percentage (96%) of unscreened respondents serves as a pointer to the large extent to which cases of cervical cancer go without being detected at least till advanced diseases have emerged. This affirms the WHO assertion many years ago that in most developing countries, only 5% of the women at any point in time had been screened for cervical cancer (WHO 2000). The figure is also in tune (though lower) with the screening coverage levels in Nigeria and most of sub-Saharan Africa which is generally below 10% (Wamai, et al. 2012). The screening coverage ranges from 5.2% in Ibadan, 4.7% in Ago-Iwoye Ogun state, 8.7% in Sagamu Ogun state and 4.4% in Sokoto (Ogunbowale et al., 2008, Adefuye et al., 2006 and Nwobodo et al., 2005, Ogunbodede et al., 2005). It is expected that since there is generally poor knowledge of the disease as was found in this study, poor screening behavior is inevitable

Of the respondents who have been screened, 7.7% reported a positive screening test result. This is supported by Thomas et al., (2012) who assessed an overall prevalence of cervical abnormalities of 7.6% in Ibadan and Leonard I. et al., (2003) in Enugu who found the prevalence of abnormal Pap smears in 12.2% of the screened women.

5.6 Service Delivery Preferences relating to adoption of Cervical Cancer Screening

There was optimum desire to be screened for cervical cancer by majority (86.3%) of the respondents if given the opportunity but most (60.7%) said they would prefer to be screened in a teaching hospital. When asked the health professional preferred, a greater proportion indicated female doctor with the reasons that they would be more comfortable relating with someone of the same sex and for privacy. Others said female doctors would understand better the body physique of a woman while some mentioned religious reasons. The fact that most of the respondents were single could have contributed to the high preference of female doctors since most singles are conservative about exposing the intimate parts of their body to an opposite sex before marriage. But for some (20.6%) of the respondents, gender is not important when it comes to health issues and therefore chose any skilled personnel. They were more concerned about the experience and professionalism of the health worker and as well the reliability of the test. Few (4.3%) that indicated they would prefer a male doctor said so with the reasons that female health workers can be harsh while the males are more sympathetic and focused while on duty. The high preference for female health workers could also be one of the predicting factors that influences low uptake.

Among the list of preferred cervical cancer screening service delivery options, most said “inclusion of cervical cancer screening test during antenatal clinic visit. This was followed by those who said “walk-in clinics in the hostel where cervical cancer screening is done” and by those who preferred “rendering of cervical cancer screening services in religious centers”. These places might have been chosen for convenience since they would not need to make out extra time to visit the health facility. Also, some women are always more confident utilizing health services provided in their religious setting. However, more than half (55.1%) do not want inclusion of cervical cancer screening test during student entrance medical examination. This may be due the stress they go through during the medical examination process. But this process can be used to create awareness on cervical cancer and its screening.

5.7 Motivation to utilize cervical cancer screening among respondents

Most (68.8%) said they will go for cervical cancer screening once they have good knowledge of what it entails. This validates that good knowledge of the disease influences good screening behavior. More than half said they are willing to use cervical cancer screening service once the doctor recommends it while the same proportion also disagreed with the statement that they will not go for cervical cancer screening because they cannot have it. This shows high motivation and willingness to utilize the screening services. Same level of willingness have been reported by several studies (Samira et al. 2015, Ndikom et al. 2014, Oche et al 2013, Oladepo et al. 2009). About half were undecided about using cervical cancer screening services no matter the cost. This might be as a result of their current academic pursuit which gives them little or no room to source for financial income thereby making them economically unempowered. This finding is supported by various studies. A Swedish Study reported that nonattendance to cervical screening was positively associated with economic barriers (Nygrd et al. 2006). Most screening programmes rely on Pap smear which are complex and costly to run especially in developing countries where health systems and infrastructures are weak (Ashford and Collymore 2005). Almost half (46.8%) were also undecided about going for cervical cancer screening services without their husbands' consent. This is not surprising considering the patriarchal nature and cultural beliefs of our society which gives the men the sole responsibility to make decisions in the family.

5.8 Health Education and Health Promotion Implications of the Study

Findings from this study reveal the need for health promotion and education programs targeted at female postgraduate students within the study area. The poor knowledge and low uptake of cervical cancer screening identified in this study can be addressed through health education and health promotion interventions. Health education is any planned activity, combination of learning experiences designed to predispose, enable and reinforce voluntary behavior conducive to health in individuals, groups or communities (Green and Krueter, 1999). Health education can bridge the gap between the students' health information and appropriate health behaviours relating to adoption of cervical cancer screening.

Several studies and program examples have demonstrated the importance of health education and health promotion in improving reproductive health and preventing cervical cancer among different groups of people. In North Carolina, a 5-year program was conducted by the North Carolina Native American Cervical Cancer Prevention Project, to evaluate the effect of health education in increasing cancer screening among Native American women in North Carolina. It was observed that women who received health education were more likely to have reported having had a Pap smear within the past year than women who did not receive health education (Dignan et al. 1996).

This study reported poor knowledge of cervical cancer and its screening among the students and this might have resulted from limited access to information on cervical cancer and its screening in the institution. Moreover, most of the students said they will go for cervical cancer screening once they have good knowledge of what it entails. In view of this, integrated health educational programs in the institution can help increase their knowledge, promote good perception and stimulate positive uptake of cervical cancer screening services.

Public enlightenment is a useful health education strategy which has the potential for reaching a large number of people. It can create awareness and influence perceptions and practices as well as foster political will for action (Whitaker, Baker and Arias, 2007). Findings from this study revealed that the media were the students' most source of information on cervical cancer and its screening. Therefore public enlightenment programs championed by school health workers (such as doctors, nurses), lecturers and students targeting television/radio programs, different social media on the internet, Behavioural Change Communication (BCC) materials, newsprint stories/features, and experience sharing, should be employed. These programs should carry messages planned and tailored to take into consideration the socio-demographic characteristics of the study population (Whitaker, Baker and Arias, 2007).

Findings from this study also highlighted the pivotal role of attitude of health workers in adoption of cervical cancer screening services. Some of the students indicated that they would prefer a male doctor with the reasons that female health workers can be harsh. It

would be important to engage the use of training method on patient relations in order to improve the attitude of health workers that carry out the procedure.

Advocacy has a strategic role to play in the formulation and implementation of policies which will promote sustained availability and accessibility of cervical cancer screening services within the institution. Since most of the students said they would prefer inclusion of cervical cancer screening test during antenatal clinic visit, at walk-in clinics in the hostel and in religious centers. These places might have been chosen for confidentiality and convenience since they would not need to make out extra time to visit the health facility. Advocacy should be targeted at the Ministry of Health and other institutions involved to aid in setting up location specific screening centers within University of Ibadan.

There should also be policy intervention by University of Ibadan through inclusion of cervical cancer screening services at the school health center (Jaja Clinic) and ensuring its affordability and accessibility to all students. This is as a result of the fact that almost half of the students indicated they were undecided about using cervical cancer screening services no matter the cost which may be because they are financially constrained.

These health education and health promotion interventions would enhance satisfaction of the high desire to be screened by majority of the students.

5.9 Conclusion

The study investigated the knowledge, perception, pattern of utilization and preferences relating to adoption of cervical cancer screening among female postgraduate students of University of Ibadan. Overall, the study findings showed poor knowledge among the respondents with only 0.3 of the respondents that had good knowledge of the disease and its screening. More than half could not identify the possible signs and symptoms while only few could mention Human Papilloma Virus infection and history of cervical cancer in the family as risk factors. Majority do not know whether visual inspection with acetic acid is a method of cervical cancer screening whereas almost half said cervical cancer

cannot be cured even if detected early. The poor knowledge of the students in this current study might have resulted from lack of limited access to information on cervical cancer and its screening in tertiary institutions. However, knowledge of cervical cancer and cervical cancer screening was significantly associated with age, marital status and post graduate level

Generally the respondents had favourable perception towards cervical cancer and cervical cancer screening. Most believed that cervical cancer is not a mild disease and also cannot occur only in people who do not know God while about half agreed that the benefit of cervical cancer outweigh the stress of the procedure.

Virtually all the respondents have not been screened and this serves as a pointer to the large extent to which cases of cervical cancer go without being detected at least till advanced stages of the disease have emerged. This is expected since there is generally poor knowledge of the disease among the respondents.

The optimum desire to be screened by majority of the respondent is an opportunity to be maximized though most indicated they wish to be screened by a female health worker with the reasons that they would be more comfortable relating with someone of the same sex and for privacy. The high preference for female health workers could also be one of the predicting factors that influences low uptake. Inclusion of cervical cancer screening test during antenatal clinic visit, walk-in clinics in the hostel where cervical cancer screening is done and rendering of cervical cancer screening services in religious bodies were the most preferred service delivery options. These places might have been chosen for convenience since they would not need to make out extra time to visit the health facility.

Most of the respondents said they will go for cervical cancer screening once they have good knowledge of what it entails therefore validating that good knowledge of the disease might influence good screening behavior. More than half said they are willing to use cervical cancer screening service once the doctor recommends it and also disagreed with the statement that they will not go for cervical cancer screening because they cannot have it. This shows high motivation and willingness to utilize the screening services. The

study shows high need for robust educational activities on cervical cancer and cervical cancer screening as well as location specific screening programmes targeting postgraduate women in the University as this will significantly improve its level of uptake.

5.10 Recommendations

The recommendations based on the findings of this study are as follows;

1. The media (television, radio and internet) topped the list of the students' sources of information. In order to increase awareness and knowledge of cervical cancer and cervical cancer screening among the students, investment in media engagement, and other useful media outlet is necessary. Women lecturers should be modeled in the school environment during media awareness especially if they had been screened. This would reinforce their knowledge about cervical cancer screening.
2. The high desire to be screened by most of the students should be maximized to promote uptake of cervical cancer screening services among the respondents. The University should integrate cervical cancer screening messages and programs with other health and development activities in the school such as health week in churches, fellowships and town meetings. This will ensure that their most preferred places for screening are utilized in dissemination of information.
3. Majority of the students reported walk-in clinics, religious centers and antenatal care clinics as their most preferred places for cervical cancer screening. The Federal Ministry of Health should help in setting up location specific screening centers. Such locations should include maternity centre in the school health facility (Jaja clinic), walk-in clinics in the hostels, religious centres and the school youth-friendly centre.
4. Most of the students also reported they would prefer to be screened by a female health professional and were as well undecided about being screened at any cost.

Therefore there is need for cervical cancer screening centers to have more female health workers who are involved in the screening procedure and the services should be provided at little or no cost.

5. The respondents in this study were restricted to only female postgraduate students resident in the hostels. There is need for further investigation on the prevalence of cervical cancer and its screening among female postgraduate students living outside the campus to enhance generalization and program intervention.

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APPENDIX 1

QUESTIONNAIRE

KNOWLEDGE, PERCEPTION, PATTERN OF UTILISATION AND PREFERENCES RELATING TO THE ADOPTION OF CERVICAL CANCER SCREENING AMONG FEMALE POSTGRADUATE STUDENTS OF UNIVERSITY OF IBADAN

Dear Respondents,

My name is **ILUNO ADAOBI CHIDINMA**, a Postgraduate Student of the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan. The purpose of this study is to determine the Knowledge, Perception, pattern of utilisation and Preferences Relating to adoption of Cervical Cancer Screening among Female Postgraduate Students in University of Ibadan. The findings from this study will help in the design of programmes and formulation of policies aimed at encouraging Cervical Cancer Screening uptake among women thereby reducing the incidence of cervical cancer in Nigeria. Your identity, responses and opinion will be kept strictly confidential and will be used for the purpose of this research only. Please note that you do not have to write your name on this questionnaire. I would appreciate you provide your honest answers to the questions asked as much as your maximum co-operation which will assist in making this research a success.

I will participate { }

I will not participate { }

Thank you.

Section A Socio-Demographic Characteristics

Instructions: *In this section please tick (✓) in the appropriate brackets that correspond to your answers or complete the spaces provided below*

1. Hall of residence 1. New Postgraduate Hall { } 2. Awolowo Hall { } 3. Balewa hall { } 4. Others (specify)-----
2. Faculty -----
3. Department -----
4. Postgraduate level 1. Postgraduate Diploma { } 2. Masters { } 3. MPhil { } 4. MPhil/PHD { } 5. PH.D { } 6. Others (specify)-----
5. Mode of study 1. Full time { } 2. Part time { }
6. Age as at last birthday (in years) -----
7. Marital status 1. Married { } 2. Single { } 3. Divorced { } 4. Separated { }
5. Cohabiting { } 6. Widowed { }
8. Religion 1.Christianity { } 2. Islam { } 3.Traditional { } 4. Others (specify) --
9. Ethnic group 1. Yoruba { } 2. Igbo { } 3. Hausa { } 4. Others (specify) -----

Section B Sexual and Reproductive Health Experiences and Vulnerability

Please answer each question by ticking (✓) the appropriate brackets or completing the spaces provided below

10. Number of children-----
11. How old were you when you first had sex?-----
12. How many male friends do you currently have sex with? 1. None { } 2. 1 { }
3. More than 1 { }
13. Have you ever used condom? 1. Yes { } 2. No { }
14. What type of condom do you use? 1. Male condom { } 2. Female condom { }
3. Not applicable 4.Others (specify).....
15. How often do you use condom? 1. Always { } 2. Rarely { } 3. Never { } 4.
Whenever my sexual partner wants it { } 5.Others (specify) -----

16. Did you use condom the last time you had sex? 1. Yes { } 2. No { }
17. Have you ever had sexually transmitted infections (eg gonorrhoea, syphilis, chlamydia, etc)? 1. Yes { } 2. No { }
18. If yes which one?-----
19. How old were you when you had sexually transmitted infections?-----
20. Have you ever taken oral contraceptive (birth pills)? 1. Yes { } 2. No { }
21. Do you have a family member who had cervical cancer? 1. Yes { } 2. No { }
22. What is your relationship with this family member who had cervical cancer? 1. Mother { } 2. Cousin { } 3. Sister { } 4. Mother's sister { } 5. Father's sister { } 6. Not applicable { } 7. Others (specify).....

Section C: Awareness and Knowledge of Cervical Cancer and Cervical Cancer Screening

Please answer this question by ticking (✓) the appropriate bracket

23. Have you ever heard of cervical cancer (ie Cancer of the cervix—mouth of the womb)? 1. Yes { } 2. No { }

If (No) discontinue

24. Tick (✓) whether *Yes* or *No* in respect to your sources of information on cervical cancer in table 1?

Table 1- sources of information on cervical cancer

S/No	Source of Information	Yes	No
24.1	Relatives		
24.2	Friends		
24.3	Lecturers		
24.4	Workplace		
24.5	Television		
24.6	Internet		
24.7	Conferences/seminar		
24.8	Newspapers		
24.9	Colleagues		
24.10	Radio		
24.11	Medical journals		

- 24.12. Others (specify).....

25. Tick (✓) *Yes* or *No* in table 2 below, the signs and symptoms of cervical cancer?

Table 2- Possible signs and symptoms related to cervical cancer

S/N	Possible signs and symptoms related to cervical cancer	Yes	No
25.1	Irregular vagina bleeding		
25.2	Abdominal Vaginal discharge		
25.3	Bleeding after sex		
25.4	Bleeding after menopause		
25.5	Abdominal stomach pain		
25.6	Pain during sex		
25.7	Rashes on the vagina		

25.8 Others (specify).....

26. Tick (✓) *Yes* or *No* in each column in table 3, the conditions (risk factors) that can determine whether a person will have cervical cancer or not?

Table 3- Conditions that determine (risk factors) having cervical cancer

S/No	Conditions that determine (risk factors) having cervical cancer	Yes	No
26.1	Being overweight		
26.2	Candida infection		
26.3	Smoking		
26.4	Having a family member who had cervical cancer		
26.5	Stress		
26.6	HIV infection		
26.7	Human Papilloma Virus infection		
26.8	Long time use of birth control pills		
26.9	Poor nutrition		
26.10	Chlamydia infection		

27. Have you ever heard of cervical cancer screening? 1. Yes { } 2. No { }

If (No) skip to question 31

28. Tick (✓) whether *Yes* or *No* in respect to your sources of information on cervical cancer screening in table 4?

Table 4- sources of information on cervical cancer screening

S/No	Source Of Information	Yes	No
28.1	Relatives		
28.2	Friends		
28.3	Lecturers		
28.4	Workplace		
28.5	Television		
28.6	Internet		
28.7	Conferences/seminar		
28.8	Newspapers		
28.9	Colleagues		
28.10	Radio		
28.11	Medical journals		

28.12. Others (specify).....

29. Table 5 below contain statements relating to cervical cancer screening, please tick (✓) in the appropriate column whether it is true, false or you don't know.

Table 5: Statements related to cervical cancer screening

S/N	Statements related to cervical cancer screening	True	False	I don't know whether true or false
29.1	Cervical cancer screening detects early changes in the womb			
29.2	Cervical cancer screening is used for treating cervical cancer			
29.3	Cervical cancer screening is a way of preventing cervical cancer			
29.4	Cervical cancer screening detects the presence of cervical cancer			
29.5	Pap smear test is a method for cervical cancer screening			
29.6	Cervical cancer screening must start from the age of 21			
29.7	Cervical cancer screening must be done yearly for women of all ages			
29.8	Cervical cancer screening should be done once only			
29.9	Cervical cancer cannot be cured even if detected early			
29.10	Regular exercise is one of the ways of preventing cervical cancer			
29.11	Cervical cancer screening should be done even in the absence of symptoms of cervical cancer			
29.12	Cervical cancer screening should be done only for older women aged 45years and above			

30. List the 3 types of cervical cancer screening test you

- a)
- b).....
- c)

Section D: Perception towards Cervical Cancer and Cervical Cancer Screening

31. For each of the statements in table 6, tick (√) the appropriate column that correspond to your perception towards Cervical Cancer

Table 6: Perception towards Cervical Cancer

S/No	Perception towards Cervical Cancer	Agree	Disagree	Undecided
31.1	Cervical cancer only occurs in people who are too sexually active			
31.2	Cervical cancer is a mild disease			
31.3	Cervical cancer screening can lead to infertility			
31.4	Cervical cancer occurs only in people who do not know God			

32. For each of the statements in table 7, tick (√) the appropriate column that correspond to your perception towards Cervical Cancer Screening

Table 7: Perception towards Cervical Cancer Screening

S/No	Perception towards Cervical Cancer Screening	Agree	Disagree	Undecided
32.1	Cervical cancer screening is a waste of time; it doesn't stop it from killing someone			
32.2	Cervical cancer screening is only for married women			
32.3	Pap smear test procedure is too discomforting			
32.4	The benefits of Cervical cancer screening outweigh the stress of the screening procedure			

Section E: Pattern of Utilisation of Cervical Cancer Screening

In this section please tick (√) the appropriate brackets that correspond to your answers or complete the spaces provided below.

33. Have you ever been screened for cervical cancer? 1. Yes { } 2. No { }. ***If No go to question 40***

34. What motivated you to go for cervical cancer screening?

a).....

b).....

d).....

c).....

35. Have you ever been screened for cervical cancer in the last 3 years? 1. Yes { } 2. No { }

36. How many times have you been screened for cervical cancer in the last 3 years? 1. Not all { } 2. Once { } 3. Two times { } 4 three times { } 5. Others (specify).....

37. Where did you do the last cervical cancer screening test? 1. Teaching hospitals { } 2. Jaja clinic { } 3. Government hospital { } 4. A private hospital/clinic { } 5. Others (specify).....

38. What type of cervical cancer screening test was conducted for you? 1. Visual inspection { } 2. Pap smear test { } 3. Human papilloma virus (HPV) testing { } 4. Don't know the type used for me { } 5. Others (specify).....

39. What was the outcome of the cervical cancer screening test you did? 1. Positive { } 2. Negative { } 3. Others (specify).....

Section F: Service Delivery Preferences relating to adoption of Cervical Cancer Screening

In this section please tick (✓) the appropriate brackets that correspond to your answers or complete the spaces provided below.

40. Will you like to be screened for cervical cancer if you have the opportunity? 1. Yes { } 2. No { }

41. Where will you want to be screened for cervical cancer? 1. Teaching hospitals { } 2. Jaja clinic { } 3. Government hospital { } 4. A private hospital { } 5. Not applicable 6. Others (specify).....

42. Who will you prefer to conduct the screening for you? 1. Female Doctor { } 2. Male doctor { } 3. Female nurse { } 4. Male nurse { } 5. Traditional birth attendant { } 6. Any skilled health personnel { } 7. Not applicable 8. Others (specify).....

43. Provide reasons for the person chosen in question 42

.....

44. Tick (✓) *Yes* or *No* in the columns in table 8, your preferred cervical cancer screening service delivery options

Table 8: Preferred Service Delivery Options for cervical cancer screening

S/No	Preferred Service Delivery Options for cervical cancer screening	Yes	No
44.1	Inclusion of Cervical Cancer Screening test during antenatal visit		
44.2	Inclusion of Cervical Cancer Screening test during HIV testing and counseling		
44.3	Inclusion of Cervical Cancer Screening test during student entrance medical examination		
44.4	Provision of “walk-in” clinics in the hostels where Cervical Cancer Screening test is done		
44.5	Rendering Cervical Cancer Screening services in religious bodies		

Section G: Motivation to Utilise Cervical Cancer Screening

Please tick (√) in the appropriate columns that correspond to your answers

Table 9: Motivation to Utilise Cervical Cancer Screening

S/No		Yes	No	Undecided
45	I will go for Cervical Cancer Screening once I have good knowledge of what it entails			
46	I will not go for Cervical Cancer Screening because I do not see the need for it			
47	I am ready to use Cervical Cancer Screening services no matter the cost			
48	I will go for Cervical Cancer Screening once I see someone who has cervical cancer			
49	I will not go for Cervical Cancer Screening because I cannot have cervical cancer			
50	I am willing to use any Cervical Cancer Screening services once my doctor recommends it			
51	I will not go for Cervical Cancer Screening without the consent of my husband			

THANK YOU

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INSTITUTE FOR ADVANCED MEDICAL RESEARCH AND TRAINING (IAMRAT)
College of Medicine, University of Ibadan, Ibadan, Nigeria.



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UI/UCH EC Registration Number: NHREC/05/01/2008a

NOTICE OF FULL APPROVAL AFTER FULL COMMITTEE REVIEW

Re: Knowledge, Perception, Pattern of Utilization and Preferences relating to Adoption of Cervical Cancer Screening among Female Postgraduate students of University of Ibadan

UI/UCH Ethics Committee assigned number: UI/EC/15/0197

Name of Principal Investigator: **Adaobi C. Iluno**

Address of Principal Investigator: Department of Health Promotion & Education,
College of Medicine,
University of Ibadan, Ibadan

Date of receipt of valid application: 09/07/2015

Date of meeting when final determination on ethical approval was made: **20/08/2015**

This is to inform you that the research described in the submitted protocol, the consent forms, and other participant information materials have been reviewed and given full approval by the UI/UCH Ethics Committee.

This approval dates from **20/08/2015 to 19/08/2016**. If there is delay in starting the research, please inform the UI/UCH Ethics Committee so that the dates of approval can be adjusted accordingly. Note that no participant accrual or activity related to this research may be conducted outside of these dates. *All informed consent forms used in this study must carry the UI/UCH EC assigned number and duration of UI/UCH EC approval of the study.* It is expected that you submit your annual report as well as an annual request for the project renewal to the UI/UCH EC early in order to obtain renewal of your approval to avoid disruption of your research.

The National Code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations and with the tenets of the Code including ensuring that all adverse events are reported promptly to the UI/UCH EC. No changes are permitted in the research without prior approval by the UI/UCH EC except in circumstances outlined in the Code. The UI/UCH EC reserves the right to conduct compliance visit to your research site without previous notification.



Professor Catherine O. Falade
Director, IAMRAT
Chairperson, UI/UCH Ethics Committee
E-mail: uiuchec@gmail.com

Research Units • Genetics & Biotechnology • Malaria • Environmental Sciences • Epidemiology Research & Services
• Behavioural & Social Sciences • Pharmaceutical Sciences • Cancer Research & Services • HIV/AIDS

APPENDIX III
Knowledge Scoring Guide/Scale

Possible signs and symptoms related to cervical cancer

S/N	Possible signs and symptoms related to cervical cancer	Yes	No	Maximum Score
25.1	Irregular vagina bleeding	*		1mk
25.2	Abdominal Vaginal discharge	*		1mk
25.3	Bleeding after sex	*		1mk
25.4	Bleeding after menopause	*		1mk
25.5	Abdominal stomach pain	*		1mk
25.6	Pain during sex	*		1mk
25.7	Rashes on the vagina		*	1mk
	Total score			7mks

Conditions that determine (risk factors) having cervical cancer

S/No	Conditions that determine (risk factors) having cervical cancer	Yes	No	Maximum Score
26.1	Being overweight	*		1mk
26.2	Candida infection		*	1mk
26.3	Smoking	*		1mk
26.4	Having a family member who had cervical cancer	*		1mk
26.5	Stress		*	1mk
26.6	HIV infection	*		1mk
26.7	Human Papilloma Virus infection	*		1mk
26.8	Long time use of birth control pills	*		1mk
26.9	Poor nutrition	*		1mk
26.10	Chlamydia infection	*		1mk
	Total score			10mks

Statements related to cervical cancer screening

S/N	Statements related to cervical cancer screening	True	False	I don't know whether true or false	Maximum Score
29.1	Cervical cancer screening detects early changes in the womb	*			1mk
29.2	Cervical cancer screening is used for treating cervical cancer		*		1mk
29.3	Cervical cancer screening is a way of preventing cervical cancer	*			1mk
29.4	Cervical cancer screening detects the presence of cervical cancer		*		1mk
29.5	Pap smear test is a method for cervical cancer screening	*			1mk
29.6	Cervical cancer screening must start from the age of 21		*		1mk
29.7	Cervical cancer screening must be done yearly for women of all ages		*		1mk
29.8	Cervical cancer screening should be done once only		*		1mk
29.9	Cervical cancer cannot be cured even if detected early		*		1mk
29.10	Regular exercise is one of the ways of preventing cervical cancer		*		1mk
29.11	Cervical cancer screening should be done even in the absence of symptoms of cervical cancer	*			1mk
29.12	Cervical cancer screening should be done only for older women aged 45years and above		*		1mk
29.13	Visual inspection with acetic acid is not a method for cervical cancer screening		*		1mk
	Total score				13mks

Q30	Types of cervical cancer screening test	Maximum score
a	Pap smear test/ cytology test	1mk
b	Visual inspection with acetic acid/ lugol's iodine	1mk
c	Human papilloma virus test and pap smear test (co testing)	1mk
	Total score	3mks

Total knowledge score = 33mks

0-11= poor knowledge

12-23= fair knowledge

24-33= good knowledge