# KNOWLEDGE AND PRACTICE OF SCREENING FOR BREAST AND CERVICAL CANCERS AMONG WOMEN IN UYO, AKWA IBOM STATE

**BY**

**EKANEM, MERCY JOSEPH**

**PG/M.SC/09/53855**

**M.Sc DISSERTATION**

**SUBMITTED TO**

**DEPARTMENT OF NURSING SCIENCES**

**FACULTY OF HEALTH SCIENCES AND TECHNOLOGY**

**UNIVERSITY OF NIGERIA**

**ENUGU CAMPUS**

**DECEMBER, 2015**

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**IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF SCIENCE DEGREE IN MEDICAL-SURGICAL NURSING**

**SUPERVISOR: DR. (MRS,) A. N. ANARADO**

**DECEMBER, 2015**

## APPROVAL

This dissertation titled ñknowledge and practice of screening for breast and cervical cancers among women in Uyo, Akwa Ibom Stateò was originally carried out by Ekanem, Mercy Joseph PG/M.Sc/09/53855 of the Department Nursing Sciences, Faculty of Health Sciences and Technology, University of Nigeria Enugu Campus.

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**Dr. (Mrs,) A. N. Anarado** **Date**
(Supervisor)

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**Dr. A. C. Nnwaneri** **Date**
(Head of Department)

## CERTIFICATION

This is to certify that this project is an original work carried out by Ekanem, Mercy Joseph with registration number PG/MSc/09/53855 of the Department Nursing Sciences, Faculty of Health Sciences and Technology, University of Nigeria Enugu Campus.

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**Dr. (Mrs,) A. N. Anarado**  **Date**
(Supervisor)

## DEDICATION

This project is dedicated to God Almighty and my daughters Victory and Favour.

**ACKNOWLEDGEMENT**

It is with a deep sense of appreciation and honour that I give my gratitude to the Almighty God for His divine protection, knowledge, provisions, strength and sustenance throughout the period of this programme. Words are inadequate to express my gratitude to Dr. (Mrs.) A. N. Anarado my supervisor who has provided her expertise, concern, encouragement and support chapter by chapter to help me complete my journey. I thank you my mentor in medical-surgical nursing for your positive attitude, thoroughness and patience.

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## ABSTRACT

The purpose of the study was to investigate the knowledge and practice of screening tests for breast and cervical cancers among women in Uyo. Four specific objectives and corresponding research questions and hypotheses were used in the study. A descriptive cross-sectional design was adopted for the study. A multistage sampling technique was used to select 420 women aged 18 to 50 years from a population of 5,860. The data collected were analyzed using the International Business Machines (IBM), Statistical Package for Social Sciences (SPSS) version 20. 0. Many of the women (66.7%) knew about Breast Self Examination (BSE), few of them (24.5% and 24%) knew Clinical Breast Examination (CBE) and Mammogram respectively and a little over half of them (54.3%) practiced them. A little number of the women (27.3%) knew cervical cancer screening and only 16.7% practiced them. There was a significant association between knowledge of eligible women to be screened and practice of breast cancer screening ($x^2$ 17.62; P = 0.00527). There was no significant association between knowledge and practice of breast cancer screening ($x^2$ = 4.93, 10.23, 6.83; P = 0.176995, 0.805028, 0.077625) and cervical cancer screening ($x^2$ = 5.26, 18.71, 6.75; P = 0.153719, 0.22717, 0.080308). There was a significant relationship between womenôs age 18 ï 28 years and the practice of breast cancer screening (r = 0.59; P = 0.00001) whereas there was no relationship between womenôs age 29 - 39 years and practice of breast cancer screening (r = ï 0.001; 0.99135) and age 40 ï 50 years (r = 0.038; P = 0.658129). Findings also showed relationship between age 18 ï 28 years and practice of cervical cancer screening (r = 0.197; P = 0.011983) whereas there was no significant relationship between other age groups and practice of cervical cancer screening with P > 0.05. Adequate health education through women friendly organizations and screening for all women during regular physician office visit for other health issues are recommended.

# CHAPTER ONE

# INTRODUCTION

## Background to the study

Cancer is the uncontrolled growth of abnormal cells anywhere in the body. The abnormal cells are termed malignant or misnomer cells (Dugdale, 2010). Cancer is a group of more than 200 diseases characterized by unregulated growth of cells. It can in persons of all ages and all races and is a major health problem in many countries worldwide. It is known to be the most feared of all diseases, feared far more than heart diseases (Seeley, Stephen & Tate, 2010). These authors viewed cancer as synonymous with death, pain, disfigurement and dependency.

Hippocrates coined the word carcinoma, meaning a tumour that spreads and destroys the host. However, ancient Egyptians and later Galen described cancer as being crablike in nature because cancerous tumours stick onto the body and prey on the flesh like crabs. They grasp the tissues they invade and cause pain that is throbbing, creeping, gnawing the flesh and resembling the pinching of a crab (Dugdale, 2010).

In the females, the most occurring cancers are those affecting the mammary glands ( breast cancer) and those affecting the neck of the uterus (cervical cancer) (Bassey, Ekpe & Abasiatai, 2007; American Cancer Society (ACS), 2009 & Odetola, 2011). Breast cancer is cancer that occurs in the breast tissue. It is a malignant proliferation of epithelial cells that line the ducts or lobules of the breast. It is formed when the processes that control normal cell growth breaks down, enabling a single abnormal cell to multiply at a rapid rate. These new cells tend to destroy an increasing portion of normal breast tissue overtime and may occur metastasize to other parts of the body (Smeltzer, Bare, Hinkle & Cheever, 2010).

Breast cancer is the most frequently diagnosed cancer among women in 140 of 180 countries worldwide (Ferlay, Soerjomataram, Ervik, Rebelo, Parkin & Forman, 2013). In 2007, 1.7 million women were diagnosed with breast cancer and there were already 6.3 million women

who were alive with the diagnosis of breast cancer in the previous five years (Ferlay, et. al, 2013). Since 2008 estimates, breast cancer incidence has increased by more than 20% while the mortality has increased by 14% making it to be the most common cause of cancer death among women, with 522,000 deaths in 2012 worldwide (Ferlay, at. al, 2013; Fasoranti, 2013).

Worldwide trends show that developing countries are going through rapid societal and economic changes in an attempt to become industrialized. There is also a shift in the life style of people towards that of industrialized countries, leading to a rise in the burden of cancer especially those associated with reproductive, dietary and hormonal risk factors. Breast cancer incidence and mortality are increasing in most countries of Africa and Asia (International Agency for Research on Cancer (IARC), 2012).Ferlay, et. al (2013) reports that the incidence rate of breast cancer varies in different regions of the world, it remains highest in more developed regions, while its mortality is relatively much higher in less developed countries due to lack of early detection and access to treatment facilities. For instance in Western Europe, breast cancer incidence has reached more than 90 new cases per 100,000 women annually compared with 30 per 100,000 women in East Africa.

Jedy-Agba, Curado, Ogunbiyi, Oga, Falowole, Osubor & Otu (2012) posited that the most common cancers in Nigeria among women are breast cancer 50.8% and cervical cancer 15.7%. The standardized incidence rate of breast cancer from both Abuja Cancer Registry (ABCR) and the Ibadan Cancer Registry (IBCR) in 2012 was 58.3 per 100,000. For IBCR only, it was 52.0 per 100,000 while ABCR had 64.6 per 100,000 (Jedy-Agba, et. al, 2012). According to Odeh, (2012) breast cancer is responsible for about sixteen percent (16%) of all cancer related deaths in Nigeria and is still the number one disease, and leading cancer scourge affecting humans with 25% of cases being reported early while 75% are reported late.

There is no single, specific cause of breast cancer, but a combination of genetic, hormonal and possibly environmental factors may increase the risk of its development. It is not a pathologic entity that develops overnight, it starts with a genetic alteration in a single cell and takes time to divide and double in size. Doubling time varies but breast tumours are often present for several years before they become palpable. For this reason every woman needs to have a clear understanding of her risk factors, warning signs of breast cancer for example, a lump, discharge from nipple and her normal breast size and shape so that any abnormality can be detected at a very early stage. Unfortunately, some women often underestimate their risk of developing breast cancer and are rarely engaged in breast screening programmes and as such seek initial treatment after years of ignoring symptoms.

Similarly, cervical cancer is a disorder of cell growth and behaviour. It is malignant and predominantly squamous cell cancer caused by the Human Papilloma virus (HPV). It usually begins in cells on the surface of the cervix and over time can invade more deeply into the cervix and nearby tissues (Kumar, et. al, 2007). HPV infection and a number of factors help to increase the risk of cervical cancer (Campbell, 2006).

Cervical cancer is the second most common and fifth deadliest cancer in women worldwide. It affects 16 per 100,000 women per year and kills about 9 per 100,000 per year (WHO, 2009). Approximately, 80% of cervical cancers occur in developing country (WHO, 2009). Data from the new cervical cancer crisis card launched globally put the annual total death count from the five top ranked countries at 137,817. Nigeria and 49 other countries were selected to provide a snapshot of the world and Nigeria ranked $10^{th}$ with cervical cancer mortality rate of 22.9 deaths per 100,000 with a total of 9,659 deaths recorded every year. The annual incidence of cervical cancer in Nigeria is confirmed at 14,000 with about 26 women losing their lives every day (Ogundipe, 2013). A five year review in University College Hospital, Ibadan Cancer Registry

about the rate and incidence of ten different types of carcinomas found in women also revealed that the incidence of cervical cancer was the second highest to breast cancer (Odetola, 2011). Bassey, et. al, (2007) in a retrospective study of all female genital malignancies in University of Uyo teaching hospital between 2000 and 2005 found that cervical cancer was the commonest (49.2%).

Cancer of the cervix is a relatively common type of cancer of the reproductive organs in females and it is usually accompanied with severe discomfort and stress. Early in its development, the cells of the cervix change in a characteristic way. This change can be observed by examining a cell sample microscopically. The most common technique is to obtain a Papanicoloau smear, which is named after Dr. George Papanicoloau, a physician who developed the technique. Pap smears have a reliability of 90% for detecting cervical cancer (Seeley, et. al, 2010). Through this test and other screening tests, precancerous lesions can be detected and treated early to avert cancerous change. Hence screening is very vital to early detection and treatment of this cancer.

Screening refers to the examination of individuals or groups of usually asymptomatic people to detect those with high probability of having a given disease, typically by means of inexpensive diagnostic tests (IARC, 2012). Screening tests can often times detect cancer in its earliest stages, long before any actual symptoms can be noticed. There are specific cancer screening tests that are available for women. Each test is highly effective and recommended for all females particularly those for breast and cervical cancers. The World Health organization (WHO) in several reports indicated that cancers are largely preventable by effective screening programmes. Considerable reduction in breast and cervical cancers incidence and deaths have been achieved in developed nations with symptomatic cytological smear, screening and breast

examination programmes organized by the national breast and cervical cancers early detection programmes (Elovainio & Miller, 2007).

Despite evidence that breast and cervical cancer screening reduces morbidity and mortality, Odetola (2011) reports that most women have not undergone regular screening examinations. The major factor which determines peopleôs participation in screening programmes either in high risk group or in the general population is the awareness which is a motivating factor (Odetola, 2011). This study therefore would assess the womenôs knowledge and practices of the various screening tests for breast and cervical cancers.

**Statement of Problem**

Most people with chronic diseases including cancer in Nigeria prefer to consult traditional healers first, although these healers do not understand the scientific basis of cancer management (Sofulowe & Bennet, 2011). Patients therefore utilize existing facilities in conventional hospitals as a last resort. This practice causes delay in presentation of cancer cases at the hospitals with a large proportion of patients being diagnosed at advanced stages of the disease. Breast and cervical cancers are the most commonly diagnosed cancers in women with an increasing morbidity and mortality rate in most developing countries (IARC, 2012; Ferlay, et. al, 2013). Whereas breast and cervical cancer screening have become a success story of cancer prevention in the developed countries (Ferlay, et, al, 2013), Odetola, (2011) reports that most women in her study have not undergone regular screening examinations.

In Nigeria, Bassey, et. al, (2007) and Odetola, (2011) in their studies in University of Uyo Teaching Hospital (UUTH), Uyo and University College Hospital (UCH), Ibadan respectively indicated that breast and cervical cancers are the commonest cancers found in women. During a free integrated health outreach by the Vision of Hope International (a non Governmental Agency) at Eket, Akwa Ibom State in 2013, seventeen (17) out of 88 women screened through

visual inspection with Lugolôs iodine tested positive while cancerous lesions were discovered in 6 out of the positive women. It was discovered that about 90.1% (80) of the women were ignorant about cervical cancer. Those who were diagnosed were not aware of the condition and the few who were aware did not know about the screening tests and where to get screened (Nwoko, 2013).

The researcher has also observed nine (9) women die between 2012 and 2013 in the State due to breast and cervical cancers. Two of them were seen receiving spiritual care/treatment in a church where they remained till death. May be these and other unknown cases could have been prevented through screening, early detection and appropriate treatment. However, in effort to avail women of screening facilities, the State branch of the Medical Women Association (MWA) offers weekly screening services at their clinic at Uyo for breast and cervical cancers in women. Nwoko, (2013) reports that the Vision of Hope after the outreach programme donated cryotherapy equipment to Akwa Ibom State Government and set up a cervical cancer unit in University of Uyo Teaching Hospital. Furthermore, the State government purchased mammography machines and supplied them to the General Hospitals to mark the 2014 world cancer day in Uyo. These efforts were to encourage screening and early detection of breast cancer among women in the State.

With the availability of screening centers in Uyo, one would want to know if the women in Uyo have knowledge of breast and cervical cancers screening? Do they participate in the various screening tests for breast and cervical cancers? This study therefore seeks to provide answers to the above questions.

**Purpose of the study**

The purpose of the study is to investigate the knowledge and practice of screening tests for breast and cervical cancers among women aged 18 to 50 years in Uyo.

**The specific objectives include to:**

1. determine the knowledge of breast / cervical cancer screening among women in Uyo.
2. determine the practice of breast / cervical cancer screening among women in Uyo.
3. ascertain if there is a relationship between womenôs age, level of education and the practice of breast cancer screening in Uyo.
4. ascertain if there is a relationship between womenôs age, level of education and the practice of cervical cancer screening in Uyo.

**Research Questions**

1. What is the womenôs knowledge on breast /cervical cancer screening in Uyo?
2. What is the womenôs practice of breast / cervical cancer screening in Uyo?
3. Is there any relationship between womenôs age / level of education and the practice of breast cancer screening?
4. Is there any relationship between womenôs age / level of education and the practice of cervical cancer screening?

**Research Hypotheses**

1. There is no significant association between knowledge of women and practice of breast cancer screening.
2. There is no significant association between womenôs knowledge and their practice of cervical cancer screening.
3. There is no significant relationship between womenôs age, level of education and the practice of breast cancer screening.
4. There is no significant relationship between womenôs age, level of education and the practice of cervical cancer screening.

**Significance of the study**

The result of this study will provide information on the knowledge of screening tests for breast and cervical cancers among women in Uyo. It will also indicate whether the women in Uyo participate in the screening programmes for breast and cervical cancers or not. The study will help to fill the gap in knowledge and practice of breast and cervical cancers among women in Uyo, Akwa Ibom State. Findings if utilized will help equip and guide nurses, health planners and other stakeholders in the health sector with the right information to direct health education programmes and campaigns to increase awareness among women on the various screening tests for breast and cervical cancers. If the results of the study were put to use, it will help to improve the number of women who present themselves for screening, thus reducing the delays in presentation, diagnosis and treatment of cancer cases. This will generally help to reduce the incidence and mortality rates of breast and cervical cancers among women in the State.

The findings will also add to the existing literature on knowledge and practice of breast and cervical screening tests, evaluate the success of cancer screening programmes in the state. Finally, the study will serve as a reference material to other researchers on related topics.

**Scope of the study**

The study was delimited to knowledge and practice of screening tests for breast and cervical cancers among women. It focused on knowledge of various screening tests, knowledge of signs to look for during screening, knowledge of screening centres and the frequency of screening.
The study was conducted in Uyo municipality and covered all women within the age range of 18 and 50 years who were present in the area during the period of the study.

**Operational definitions of terms**

**Knowledge of breast and cervical cancer screening tests** ï Being able to identify the appropriate screening tests for breast and cervical cancer.

- Knowledge of when the tests should be done.
- Knowledge of likely findings to report for breast cancer for example lump, discharge from the nipple, pain.
- Knowledge of likely findings to report for cervical cancer example bleeding during sex, swelling, pain.

**Practice of breast and cervical cancer screening –** having had her breasts and cervix examined or screened for signs of breast and cervical cancers within the past three years and more than once.

**Screening tests –** the screening tests of concern in this study include:

***Breast self-examination*** – Examination of the breast by an individual for lumps, changes in size or shape of the breast or any other changes in the breasts or underarm.

***Clinical breast examination -*** Examination of breast by medical Doctor or Nurse for signs of cancer.

***Mammogram*** – The use of an X-ray machine by a radiographer to check the womenôs breasts for abnormal cells or cancer cells or signs.

***Inspection of the cervix -*** Having ones cervix inspected by a doctor or nurse with the aid of a speculum. Example, visual inspection of the cervix with application of acetic acid (VIA) or lugolôs iodine (VILI). This is examination of the cervix for abnormal changes or cancerous cells after applying either acetic acid or lugolôs iodine.

***Pap smear-*** is a test in which a speculum is inserted in to the vagina, a brush used to collect cells from the cervix and the cells thereafter checked for signs of cancer microscopically.

***Human Papillomavirus DNA test-*** is a test in which cell sample from the cervix are checked for the presence of human papillomavirus.

***Women*** – adult females within the age of 18 and 50 years who will be found in Uyo municipality during the study.

# CHAPTER TWO

# LITERATURE REVIEW

This chapter reviewed existing literature on the knowledge and practice of breast and cervical cancer screening tests and critical analysis of variables of concern in the topic. The review is organized under conceptual, theoretical and empirical review as well as summary of literature review.

## Conceptual Review

### Breast cancer

The breasts are accessory organs of reproduction which are situated on the superficial fascia of the pectoralis major and serratus anterior muscles in the anterior chest wall. The breasts are usually hemispherical in the young nulliparous girl but often flat and pendulous in the multiparous woman and the size and shape vary in individuals (Smeltzer, et. al, 2010). They are present in both sexes but are rudimentary in, males and children. The biological role of the female breast is to produce milk to nourish a newborn baby. It plays a social role of identification beauty, shape as well as body image enhancement. Smeltzer, et. al, (2010) observed that in many cultures, the breast plays a significant role in a womanôs sexuality and self identity, such that a breast disorder whether benign or malignant can cause a great discomfort, anxiety and fear of potential disfigurement, loss of sexual attractiveness and even death.

Breast cancer is a cancer that starts in the tissues of the breast (National Cancer Institute (NCI), 2011 and Carlson, Allred, & Anderson, 2009). It occurs as two main types: Ductal carcinoma which starts in the tubes (ducts) that move milk from the breast to the nipple and the lobular carcinoma which starts in the lobules that produce milk. Carlson, et, al, (2009) further stated that breast cancer may be invasive: spread from the milk duct or lobule to other tissues or non-

invasive when it has not yet invaded other breast tissue. Non invasive breast cancer is called carcinoma ñin situò but may progress to invasive cancer if untreated (NCI, 2011).

Many breast cancers are sensitive to the hormone estrogen. This means that estrogen causes the breast cancer tumour to grow. Such cancers have estrogen receptors on the surface of their cells and are called estrogen receptor-positive cancer or ER-positive cancer (NCI, 2011). Some women have what is called HER2-positive breast cancer. HER2 refers to a gene that helps cells grow, divide, and repair themselves. When cells (including cancer cells) have too many copies of this gene, they grow faster. Experts think that women with HER2-positive breast cancer have a more aggressive disease and a higher risk that the disease will recur than women who do not have this type (NCI, 2011; Carlson, et, al, 2009).

**Incidence and mortality**

The American Cancer Society (ACS), (2009) report that there is no cure and also estimated that more than 190,000 women and 1900 men develop the disease while more than 40,000 die of it annually. The incidence rate according to the report has decreased greatly with a corresponding reduction in the mortality rate due to a combination of early detection and improved treatment modalities (ACS, 2009). The incidence of breast cancer varies greatly around the world. It is lowest in less developed countries and greatest in the more developed countries (IARC, 2012). For instance the United State of America has the highest annual incidence rate of breast cancer in the world with 128.6 per 100,000 in whites and 112.6 per 100,000 among African Americans whereas the incidence in Uganda is 22 per 100,000. In Brazil it is the leading cause of death while it is the second leading cause in Turkey (IARC, 2012).

According to Ferley, Shin, Bray, Forman, Mathers & Parkin (2010) breast cancer is by far the most frequent cancer among women with an estimated 1.38 million new cancer cases diagnosed in 2008 (23% of all cancers), and ranks second overall (10.9% of all cancers). It is

now the most common cancer both in developed and developing regions with 690,000 new cases estimated in each region. Incidence rate vary from 19.3 per 100,000 women in Eastern Africa to 89.9 per 100,000 women in Western Europe, and are high (greater than 80 per 100,000) in developed regions of the world (except Japan) and low (less than 40 per 100,000) in most of the developing regions (Ferlay, et. al, 2010).

Breast cancer is the most common cause of cancer death (552,000 in 2012) among women worldwide (Ferlay, et. al, 2013; Fasoranti, 2013). The incidence rate remains highest in more developed regions, but mortality is relatively much higher in less developed countries due to lack of early detection and access to treatment facilities. Breast cancer incidence and mortality rates are increasing in most countries of Africa and Asia (IARC, 2012, Nelson, 2013). Fasoranti, (2013) also observed that breast cancer constitutes a major public health issue globally with over one million new cases diagnosed annually resulting in over 400,000 annual deaths and about 4.4 million women living with the disease.

According to Odeh, (2012) breast cancer is responsible for about sixteen percent (16%) of all cancer related deaths in Nigeria and still the number one disease, and leading cancer scourge affecting human with 25% of cases being reported early while 75% are reported late. Experts also observed that the rate of breast cancer in Nigeria doubles yearly and therefore predict that 42 million Nigerians will have breast cancer in 2020 (Ferlay, et. al, 2013).

**Pathophysiology of breast cancer**

Normal cells divide as many times as needed and stop. They attach to other cells and stay in place in tissues. Cell becomes cancerous when mutation destroys their ability to stop dividing, to attach to other cells and to stay where they belong. When cells divide, their DNA is normally copied with many mistakes, but error-correcting proteins fix those mistakes (Campbell & Monga, 2006).

Garbutt (2013) states that the mutation known to cause breast cancer such as P53, BRCA type 1 and type II occur in the error-correcting mechanisms. These mutations are either inherited or acquired after birth. Normal cells will commit cell suicide (apoptosis) when they are no longer needed. Until then; they are protected from cell suicide by several protein clusters and pathways. Sometimes, the genes along these protective pathways are mutated in a way that turns them permanently ‘on’, rendering the cell incapable of committing suicide when it is no longer needed.

Like other cancers, there are several factors that can raise the risk of getting breast cancer. Garbutt (2013) described breast cancer as a malignant tumor that starts in the cells of the breast. Breast cancer arises from the epithelium of the duct system anywhere from nipple end of major lactiferous ducts to the terminal duct unit which is in the breast tubule. These cells loose differentiation and may be in situ or invasive cancer. In situ cancer is pre-invasive when the cells have not reached the epithelial basement membrane (Campbell, et. al, 2006). The cancer cells remain inside the breast duct without intruding into normal adjacent breast tissue and may be ductal or lobular. The cells grow progressively with corresponding increase in the size of the tumour. The tumour cells spread beyond the basement membrane to regional lymph nodes and to distant organs resulting in several discrete changes in cellular function. Initially breast cancer produces no symptoms, but lump, inverted nipple and skin dimpling can manifest later. As the condition progresses cancer cells continue to spread through blood stream to more distant parts of the body like liver, lung, brain, etc. The signs and symptoms example pain and swelling increase and worsen as the tumour size and stage increases, if the condition is not attended to metastasis increases with a worse prognosis (Garbutt, 2013).

**Signs and symptoms**

Early breast cancer usually does not cause symptoms. This is why regular breast examinations are important. As the cancer grows, symptoms may include: breast lump, changes in the size, shape, or feel of the breast example, redness, dimpling, or puckering that looks like the skin of an orange, fluid coming from the nipple may be bloody, yellow, green, and look like pus. Symptoms of advanced breast cancer may include: bone pain, breast pain or discomfort, skin ulcers, swelling of one arm (next to the breast with cancer), and weight loss. The size, stage, rate of growth, and other characteristics of the tumour determine the kinds of treatment.

**Risk factors for breast cancer**

Anything that increases the chance of developing cancer is called cancer risk factor while those that decrease the chance of developing cancer is called cancer protective factor. Some risk factors can be avoided such as smoking and are termed modifiable risk factors while many others cannot be avoided. Carlson, et al, (2009), explains that the primary risk factors for breast cancer are female sex, age, lack of childbearing or breast feeding, high hormone level, race, economic status and dietary iodine deficiency. The overwhelming majority of cases of breast cancer are women though men can also develop breast cancer. Women with a normal body mass index at age 20 who gain weight as they aged had nearly doubled the risk of developing breast after menopause in comparison to women who maintained their weight. The average 60 year old womanôs risk of developing breast cancer by age 65 is about 2 percent, her lifetime risk is 13 percent.

Olapade, (2008) noted that personal history of breast cancer (a woman who had previous cancer in one breast) increases risk of getting a second breast cancer, this being higher and significant if her mother, sister, daughter or two close relatives had breast or ovarian cancer before age 40.It is estimated that about 5-10% of breast cancer cases are due to inheritance of

highly penetrant mutations in breast cancer susceptible genes. These breast cancer genes are human tumour suppressor genes, which produce proteins called breast cancer type 1 and type 2 susceptible proteins which help repair damaged DNA and destroy the cell. When damaged DNA cannot be repaired, it results in uncontrolled cell duplication and subsequent cancer development. Therefore family members who harbor mutations in these genes have a 60% to 80% risk of developing breast cancer in their lifetimes (Anderson, 2009).

Early menarche and late menopause are weak risk factors but there is an indication that high fat diet, alcohol intake of two unit alcohol per day, obesity, environmental factors such as tobacco use, radiation and endocrine disruptors increase the risk of developing breast cancer. The higher risk in tobacco use however, depends on the amount used and when smoking began (Anderson, 2009; IARC, 2012).

**Treatment modalities for breast cancer**

The main goals of a cancer diagnosis and treatment programme according to Boehmke & Dickerson, (2000) are to cure, considerably prolong the life of patients and to ensure the best possible quality of life of the cancer survivor. The most effective and efficient treatment programmes are those that are provided in a sustained and equitable way, are linked to early detection, adhere to evidence-based standards of care and a multidisciplinary approach. Treatment may include surgery, drugs (hormonal therapy and chemotherapy), radiation and/or immunotherapy. However, cancer treatment and prognosis depends on stage at diagnosis (NCI, 2011; ACS, 2011).

Choice of cancer treatment according to Minton (2014) is influenced by several factors including specific characteristics of the cancer, patientôs condition and the goal of treatment. Depending on these a patient may receive one or more of the followings: Surgery, Chemotherapy, radiation, hormonal, targeted or biological therapy. Targeted therapy according

to Minton (2014) is one that is designed to treat only the cancer cells with minimized damage to normal healthy cells. Biological therapy includes immunologic therapy, immunotherapy or biotherapy. It uses body immune system to facilitate the killing of cancer cells e.g. interferon, interleukin, monoclonal antibodies, colony stimulating factors (Cytokines) and vaccines. Minton (2014) further explains that the use of several treatment modalities concurrently is referred to as multi-modality treatment of the cancer.

WHO (2014) stated that surgery alone and sometime radiation alone is only likely to be highly successful where the tumour is localized and small in size and explained that effective treatment requires combination of modalities. Treatment of breast cancer typically incorporates several treatment modalities which may include surgery, radiation therapy, chemotherapy and hormonal therapy. Depending on the stage of the breast cancer this multi-modality treatment approach may increase a patientôs chance of cure, improve a patientôs duration of survival and/or improve a patientôs quality of life.

ACS (2013) reports that breast cancer stage 1 is highly treatable and requires immediate treatment typically surgery and often radiation or a combination. Breast Conserving Surgery (BCS) is often appropriate for earlier stage of invasive breast cancer if the cancer is small enough, although mastectomy is also an option. If the cancer is too large, a mastectomy will be needed, unless preoperative chemotherapy can shrink the tumour enough to allow BCS. For all cancers larger than 1cm across, adjuvant systemic therapy after surgery is recommended. Stage II breast cancer are larger and/or have spread to a few nearby lymph nodes. The local therapy options are similar to stage I except that radiation therapy to the chest wall may be considered after mastectomy if the tumour is large more than 5cm across or cancer cells are found in several lymph nodes. Adjuvant systemic therapy which may be hormone therapy

chemotherapy, trasuizumab or some combination of these may be recommended depending on the patientôs age, estrogen receptor status and HER2/ new status (ACS, 2013).

For stage III breast cancer the tumour is large, greater than 5cm across or grows in nearby tissues or the cancer has spread to many nearby lymph nodes. Local treatment include chemotherapy (neoadjuvant- trasuizumab) before surgery. This is followed by mastectomy and auxiliary lymph node dissection, then adjuvant treatment with chemo and radiation therapy. If the trasuizumab is hormone receptor positive, hormone therapy is recommended (ACS, 2013).

In inflammatory Breast Cancer I ï III adjuvant drug therapy may be recommended based on the tumourôs size, spread to lymph nodes and other prognostic features. For stage IV cancers where cancers have spread beyond the breast and lymph nodes to other parts of the body, the main treatment is systemic therapy although surgery and/or radiation may be useful in some situations. These treatments can only shrink tumours or improve symptoms as well as help the patients to live longer but not cure. For advanced breast cancers that progresses during treatment further treatment can shrink the cancer or slow its growth for hormone receptor positive cancers treated with hormone therapy. Changing to another type of hormone therapy helps. For example, if letrozole or anastrozole were given, changing to everolimus with exemestane may be an option, and if hormone drugs stopped working, chemotherapy is usually the next step. In case of recurrent breast cancer in the same breast, another treatment course is required. Cancer which reoccurs in the opposite breast is a new cancer and requires its own treatment (ACS, 2013).

**Prognosis of breast cancer**

New, improved treatments are helping persons with breast cancer live longer. Even with treatment, though, breast cancer can spread to other parts of the body. Sometimes, cancer returns after the entire tumours have been removed and nearby lymph nodes are found to be

cancer free. How well one does after being treated for breast cancer depends on many things. The more advanced the cancer, the poorer the outcome. Other factors used to determine the risk of recurrence and the likelihood of successful treatment include: location of the tumour, the extent of spread, whether the tumour is hormone receptor positive or negative, tumour markers, such as HER2, gene expression, tumor size, shape, rate of cell division or how quickly the tumor is growing.

**Prevention of breast cancer**

Cuzick, Decensi & Anin, (2011) stated that tamoxifen is approved for breast cancer prevention in women aged 35 and older who are at high risk. Women at very high risk of breast cancer may consider preventive (prophylactic) mastectomy which is surgery to remove the breasts before breast cancer is diagnosed. Possible candidates include; women who have already had one breast removed due to cancer, women with a strong family history of breast cancer and women with genes or genetic mutations that raise their risk of breast cancer (such as BRCA1 or BRCA2).

A total mastectomy is another preventive measure to reduce ones risk of breast cancer. This may however reduce, but does not eliminate the risk of breast cancer. Many risk factors, such as ones genes and family history, cannot be controlled but making healthy lifestyle changes may reduce the overall chance of getting cancer which includes eating healthy foods example those that promote a healthy weight, whole grains instead of refined grain products, eating more fruits and vegetables each day, alcohol consumption reduced to one drink per day (women at high risk of breast cancer should not drink alcohol at all) (Cuzick, et. al, 2011).

**Breast cancer screening**

Screening tests are essential in keeping the body healthy and ensures prompt and early treatment if an individual develops a disease. Breast cancer screening refers to medical screening of asymptomatic, apparently healthy woman for breast cancer in an attempt to achieve an early diagnosis (NHS, 2007). A number of screening tests employed in breast cancer include, clinical and breast self examination, mammography, genetic screening, ultrasound, and magnetic resonance imaging. According to Saslow, Hannan, Osuch, Baines, Bobo & Moorman, (2009), three main tests are used to screen the breasts for cancer; they include Mammogram, Clinical breast examination and Breast Self-examination. The study is limited to these three as the other tests are not widely done in most States in Nigeria.

***Breast self-examination***

Breast self-examination is a screening test in which a woman checks her own breasts for lumps, changes in size or shape of the breast, or any other changes in the breasts or underarm (armpit) ACS (2009) in her guidelines recommends that women should know how their breasts normally look and feel and report any breast change promptly to their health care provider. Breast self-examination (BSE) is an option for women starting in their 20s and this gave the basis for using women age 20 years and above for the study. BSE as a modality used for early detection of breast cancer is best performed after menses by pre-menopausal women (day 5 to day 7 counting the first day of menses as day 1), while the postmenopausal women perform BSE on the first day of each month. BSE occurs in five steps. Step one involves standing in front of a mirror, checking both breast for anything unusual including discharge from the nipple, puckering, dimpling or scaling on the skin. In step two the mirror is watched closely with the hands-clasped behind the head and pressed forward noting changes in the contour of the breast. Step three is the next step in which the hands are pressed firmly on the hips with a

forward bow slightly towards the mirror with the shoulders and elbows pulled forward as this indicates any change in the contour of the breasts. Step four involves raising the left arm, using three or four fingers of the right hand to feel the left breast firmly, carefully and thoroughly. This begins at the outer edge, palpating in small circles and slowly moving around the breast. This is gradually worked toward the nipple until the whole breast is covered. Special attention is usually paid to the area between the breast and the underarm and the underarm itself. Unusual lump or masses are looked out for and the examination is repeated for the right breast. Step five is the last step and involves repetition of step four while the women lies flat on the back with left arm under the head and pillow under the left shoulder. The right arm palpates the left breast using circular motions as in step four and same procedure is repeated for the right breast (Smeltzer, et. al, 2010; Burke, Mohn-Brown & Eby, 2011).

In developing and resource-constrained country like Uganda, BSE is an important viable substitute, where access to CBE and most importantly mammography is extremely difficult and might still detect cancer early enough for treatment which can be offered to prolonged womenôs lives and reduce suffering. Abnormal findings on screening are further investigated by surgically removing a piece of the suspicious lump (biopsy) to be examined under the microscope. Ultrasound may be used to guide the biopsy needle during the procedure (ACS, 2010).

***Clinical breast examination***

A clinical breast examination (CBE) is an examination of the woman by a trained health professional (doctor or nurse etc), and involves inspection and palpation of the breast and axillae and checking the nipples for discharge. CBE seeks to detect breast abnormality or evaluate patient report of symptoms to find palpable breast cancers at an earlier stage of

progression (Saslow, et, al, 2009). CBE can be conducted during any general physical or gyneacologic examination or whenever the patient reports an abnormality. Smeltzer, et.al, (2010) stated that a thorough CBE takes about ten minutes and includes instructions for BSE. ACS recommends CBE every three years in women between 20 and 39 years of age and annually after age 40 with monthly BSE while American Medical Association (AMA) and United State Preventive Services Task Force (USPSTF) added that CBE should be optional every one to two years for women aged 50 to 69 years (Smith, et. al, 2008).

Smeltzer, et. al, (2010) described the CBE as inspection of the breast in sitting position for size, symmetry, skin colour change, prominent venous pattern, oedema, pitting of the skin giving it orange peel appearance, enlarged skin pores and dimpling. Also palpation of the womanôs breast in both upright and supine position. This involves the entire surface of the breast and axillary tail symmetrically palpated in a clockwise fashion towards the nipple. Any enlarged nodes, tenderness or masses felt during palpation are noted and properly described with respect to the size, shape, location and mobility. Abnormalities detected during the examination are further evaluated by the physician (Smeltzer, et. al, 2010).

***Mammogram***

A Mammogram is an X-ray of the breast. It allows a qualified specialist to examine the breast for any suspicious area. The breast is exposed to a small dose of ionizing radiation that produces an image of the breast tissue. Mammogram can often show a breast lump before it can be felt. They can also show tiny cluster of calcium called micro calcifications. Lumps or specks can be caused by cancer fatty cells or other conditions like cysts therefore, further tests are needed to determine if abnormal cells are present (NCI, 2012). Mammogram is typically used for two purposes, to aid in diagnosis of a woman who is experiencing symptoms

(diagnostic mammogram) and for medical screening of apparently healthy woman (screening mammography).

A mammogram may also find ductal carcinoma in situ, abnormal cells in the lining of a breast duct, which may become invasive cancer in some women. The ability of a mammogram to find breast cancer may depend on the size of the tumour, the density of the breast tissue, and the skill of the radiographer. Mammograms are less likely to find breast tumours in women younger than 50 years than in older women. This may be because younger women have denser breast tissue that appears white on a mammogram. A tumour also appears white on a mammogram, which makes it hard to find (Saslow, et. al, 2009).

Armstrong, Moye, Williams & Reynold, (2007) explained that mammography is not generally considered as an effective screening technique for women at average or low risk of developing cancer who are less than 50 years old. Preventive services tasks force indicated that the evidence in favour of routine screening of women under of 50 is weak due to difficulty in interpreting mammography from a dense breast. After menopause, the breast glandular tissue is replaced by fatty tissue making mammography interpretation much more accurate (Armstrong, et. al, 2007).

NCI, (2012) recommended women 40 years and older to have mammogram every one or two years. The guidelines stated that women who are younger than 40 years and have risk factors for breast cancer should ask their health care professional whether mammography is advisable and how often to have them. Also every woman who has no symptoms and no known risks for breast cancers should have a regularly scheduled mammography to help detect a potential breast cancer at the earliest possible time. If the mammography shows an abnormal area of the

breast, the doctor will order additional tests offering clearer, more detailed images of the area such as magnetic resonance imaging, or ultrasound or biopsy (NCI, 2012).

**Factors influencing breast cancer screening**

Factors associate with breast cancer screening programme participation may differ between developed and developing countries. Recently, the breast cancer screening rate has increased to 70% in the United States. Many studies have suggested that, in the United State, having access to a physician who recommended mammography was the strongest predictor of breast cancer screening, whereas breast cancer awareness campaigns and socio-economic barriers such as low income, unemployment and a low education level, were less important in predicting breast cancer screening (IARC, 2012).

Kiguli, Gouzaga, Francis, Michael, Nakatudde & Nyanyima, (2010) report that majority of women do not participate in breast cancer screening exercise because they are not aware of the risk factors for developing breast cancer. They also attributed the reason to lack of exposure to knowledge and facts about breast cancer screening programmes. Another reason for not participating in the screening was low level of education and lack of awareness on how to access accurate information about breast cancer and screening tests.

Despite the efficacy and widespread screening programmes, a significant number of eligible women still do not attend regular breast screening. This has been associated with psychological and practical issues, ethnicity issues, influence of socio economic status and issues related to screening programmes. Lack of access to information which clearly communicates the harm and benefits of breast screening to enable the women to make informed decisions about their health (Edgar, Glackin, Rogger & Hughes, 2013).

Kiguli, et.al, (2010) stated that limited mammography services in some developing countries was an attributed factor especially where mammography can only be accessed in the National referral hospital and few private health facilities found in the capital city. This of course leaves the majority of women and even health workers in rural areas ignorant about the test. Dibble, Vanoni & Miaskowski, (2007) stated that there may be several reasons for not undergoing mammography which include, cost of mammography, mammography induced pain, discomfort and the effects of radiation received during mammogram.

**The concept of cervical cancer**

The cervix is the lowest narrower part of the uterus. It acts as a passageway with two openings, one above leading to the uterine cavity and one below leading to the vagina. The cervix performs important roles which include production of mucus which helps in movement of spermatozoa from the vagina to the uterus during sex. During menstrual period, blood flows from the uterus through the cervix to exterior, during pregnancy the cervix is tightly closed to help keep the fetus inside the uterus, and during childbirth the cervix opens to allow the baby to pass through the vagina.

Cervical cancer is a malignant neoplasm arising from cells originating from the cervix uteri. It is a slow glowing cancer that starts as a pre-cancerous condition called dysplasia. It may not have symptoms but can be found with regular pap tests and is 100% treatable (Smith, et.al, 2008). Cervical cancer is associated with a virus called human pappilloma virus (HPV) which spreads through sexual contact. Most womenôs body are able to fight HPV infection but sometimes the virus leads to cancer (National Institute of Health (NIH), 2012).

**Risk factors**

Epidemiologists working in the early 20th century noted that cervical cancer behaved like a sexually transmitted disease (Howlader, 2011). They summarized its occurrence thus:

- Cervical cancer was common in female sex workers.
- It was rare in nuns, except for those who had been sexually active before entering the convent.
- It was more common in the second wives of men whose first wife had died from cervical cancer and was rare in Jewish women.

The American Cancer Society, (2009) provides the following list of risk factors for cervical cancer: human papilloma virus (HPV) infections, smoking, HIV infection, Chlamydia infection, stress and stress-related disorders, hormonal contraception, multiple pregnancies, exposure to the hormonal drug diethylstilbestrol, and family history of cervical cancer. early age at first intercourse and first pregnancy are also considered risk factors, magnified by early use of oral contraceptives.

Smeltzer, et. al, (2010), outlined the risk factors for cervical cancer as sexual activity which included multiple sex partner, early age (younger than 20 years) at first coitus. This exposes the vulnerable young cervix to potential viruses from the partner, sex with uncircumcised males, sexual contact with males whose partner have had cervical cancer, HIV infections and other causes of immunodeficiency, smoking and exposure to second hand smoke, that is inhaling the smoke from others, nutritional deficiencies of folate, beta-carotene and vitamin C and overweight status (NCI, 2011).

**Incidence and mortality**

Worldwide, cervical cancer is the second most common and the fifth deadliest cancer in women. It affects about 16 per 100,000 women per year and kills about 9 per 100,000 per year. Approximately, 80% of cervical cancers occur in developing country (WHO, 2012). Worldwide in 2008, it was estimated that there were 473,000 cases of cervical cancer, and 253,500 deaths per year (Armstrong, 2010, WHO, 2012). ACS, (2010) report that in United States, cervical cancer is the 8$^{th}$ most common cancer in women. Among gyneacological cancers it ranked behind endometrial and ovarian cancers. The median age at diagnoses is 48 and Hispanic women are significantly more likely to be diagnosed, and about 12,800 women were diagnosed in the US and about 4,800 died in 2008 in the US an estimated 11,000 new cases were expected to be diagnosed, and about 3,870 were expected to die of cervical cancer in the US in subsequent years (ACS, 2010).

NCI, (2012) observed that the incidence and mortality in the US are about half those for the rest of the world, which is due in part to the success of screening. ACS, (2013) reported that the annual direct medical cost of cervical cancer prevention and treatment prior to introduction of HPV vaccine was estimated at $6billion and most cancer cases in United States are found in women younger than 50 years. The condition rarely develop in women who have been having regular pap smear and those younger than 20 years and more than 20% are found in women over 65 years of age. In the European Union, there were about 34,000 new cases per year and over 16,000 deaths due to cervical cancer in 2004 (NCI, 2012). In the United Kingdom, the age standardized (European) incidence is 8.5/100,000 per year. It is the twelfth most common cancer in women, accounting for 2% of all female cancers, and is the second most common cancer in the under 35s females, after breast cancer. The UKôs European age standardized mortality is 2.4/100,000 per year (Cancer Research United kingdom Cervical Cancer Statistics

for the UK) (NCI, 2012). In Canada, it was estimated that 1,300 women would be diagnosed with cervical cancer in 2008 and 380 would die (MacDonald, Stanbrook & Herbert, 2008).

In Australia there were 734 cases of cervical cancer in 2005. The number of women diagnosed with cervical cancer has dropped on average by 4.5% each year since organized screening began in 1991 (1991-2005). Menzer, (2009) projected that regularly two-yearly pap tests could reduce the incidence of cervical cancer by up to 90% in Australia, and save 1,200 Australian women dying from the disease each year. IARC, (2012) reported that the poorest regions of the world including South Asia, sub Saharan Africa, and part of Latin America recorded 80% of cervical deaths. Also, report from Nigeria indicates that cervical cancer is the second most prevalent cancer with the incidence of 14,550 per 100,000 women (IARC, 2012). A report of population based cancer registry in Nigeria showed that cervical cancer age standardized incidence rate (ASR) in 2012 at the Ibadan cancer registry was 36.0 per 100,000 and 30.3 per 100,000 at the Abuja cancer registry but the combined ASR of cervical cancer from both registries was 34.5 per 100,000 (Jedy-Agba, et. al, 2012).

Furthermore Ogundipe, (2013) explained that half of all women who die of cervical cancer live in just five countries: India, China, Brazil, Bangladesh and Nigeria. A new cervical cancer crisis card launched globally in commemoration with international motherôs day on may 12th 2013 put the annual total death count from the five top ranked countries at 137,817 compared to the estimated 275,000 annual total deaths from 500,000 new cases recorded in the 50 countries surveyed including Nigeria.

The crisis card highlighted that more women die of cervical cancer in India (comparatively ranked number one) than anywhere else on earth, while Norway ranked 50 and records the least number of deaths. A total of 9,659 deaths are recorded in Nigeria (ranked 5) every year.

Zambia with 38.6deaths per 100,000 has the highest cervical cancer mortality rates in the world, while Australia (1.4 deaths per 100,000) has the lowest. The card showed that the top 10 countries with the highest cervical cancer mortality rates can be found in Africa and Nigeria ranked 10 with cervical cancer mortality rate of 22.9 deaths per 100,000 (Ogundipe, 2013).

**Pathophysiology of cervical cancer**

The cervix is normally composed of stratified squamous epithelium which provides protection from toxic substances and infection. The top layer of the epithelium is continually dying and sloughing off and the integrity of the lining is maintained by the constant, orderly formation of new cells in the basal layer .cervical cancer show several subtypes which includes squamous cell cancer, adenocarcinoma/adenosquamous carcinoma, small cell carcinoma and neuroendocrine carcinoma; but the squamous cell carcinoma acconts for 80 -85% of all cervical cancer (Campbell & Monga, 2006).

The primary cause of squamous cervical cancer is persistent or chronic infection with the so called high risk or oncogenic types of human Papilloma virus (HPV). In the presence of persistent HPV infection and other co-factors metaplasic squamous cells of the transformation zone take on an abnormal appearance; cervical squamous pre-cancer (dyplasia). These cells later multiply in a disorderly manner typical of cancerous change to produce squamous cell cerinoma abnormal cells into the thick fibrotic connective tissue underlying the basement membrane. It starts with micro invasive stage and later evolves into larger lesions.

As the cancer advances, Daugdale, (2010) states that it may invade the tissues outside the cervix including lymph glands anterior to sacrum. In one third of patients with invasive cervical cancer, the disease involves the fundus and nerves in the region resulting in excruciating pain in the back and leg that is relieved only by larger doses of opiate analgesics. As it progresses it produces extreme emaciation, and anaemia from bleeding usually

accompanied by fever due to secondary infection and abscesses in the ulcerating mass. There is fistula formation with matastasis being present in the abdomen, lungs etc. if untreated, cervical cancer spreads directly into the pelvis with death of ten occurring from haemorrhage infection or renal failure but early detection through screening and early institution of treatment can reverse the condition.

**Symptoms**

Early cervical cancer rarely produces symptoms. If symptoms are present, they may go unnoticed as a thin watery vaginal discharge often noticed after intercourse or douching. When symptoms such as discharge, irregular bleeding, or pain or bleeding after sexual intercourse occur the disease may be advanced. Advanced disease should not occur if all women have access to gyneacologic care and avail themselves of it. The nurseôs role in access to care and its utilization is crucial. Bleeding may persist and increase and disease continues with increasing leg pain, dysuria, rectal bleeding, oedema of the extremities, bone fracture, loss of appetite and weight loss. Later it invades the tissues outside the Cervix, including the lymph glands anterior to the Sacrum and may involve the fundus. At this point there is regional nerve involvement resulting in excruciation pain at the back and legs that is only relieved by large doses of opioid analgesic with associated emaciation and anaemia (Nanda, 2006; Kumar, Abass, Fausto & Mitchell, 2007; Stoppler, 2013).

**Classification**

Dillman, (2009); Marrazzo, Kiviat, Kuypers & Stine, (2011) stated that there are about 150-200 known types of HPV. Type 16 and 18 are the cause of 70% of cervical cancer globally while 31 and 45 are the cause of another 10%. Fifteen out of the 150-200 known types are classified as high risk types (16, 18, 31, 33, 35, 39, 45,51,52, 58, 59, 68, 73 An 82), 3 are probable high risk (26, 53, 660 and 12 as low-risk (6, 11, 40, 42, 43, 54, 61, 70, 72, 81 and 108).

Stoppler, (2013) and Demay, (2007) contributing to the classification of cervical cancer stated that the naming and histologic classification of cervical carcinoma precursor lesions has changed many times over the 20th century. The World Health Organization classification system was descriptive of the lesions, naming them mild, moderate or severe dyplasia or carcinoma in situ (CIS). The term cervical intraepithelial neoplasia (CIN) was developed to place emphasis on the spectrum of abnormality in these lesions, to help standardize treatment. It classified mild dysplasia as CIN I, moderate dysplasia as CIN 2, and severe dysplasia and CIS as CIN 3. More recently, CIN 1 and CIN2 have been combined into CIN2/3. These results are what a pathologist might report from a biopsy and should not be confused with the Bethesda system terms for pap smear (cytopathology) results. Among the Bethesda result are: Low-grade Squamous Intra epithelial Lesion (LSIL) which indicates mild dysplasia and High-grade Squamous Intraepithelial Lesion (HSIL) indicating moderate or severe neoplasia. A LSIL pap may correspond to CIN 1, and HSIL may correspond to CIN 2 and CIN 3, however they are results of different tests, and the pap smear result need not match the histologic findings (Stoppler, 2013; Demay, 2007).

The Federation of International Gyneacology Obstetric (FIGO) classification system according to NCI, (2014) classified cervical cancer into four categories: I, II, III and IV, each category is further classified into A and B which also is sub divided into: 1 and 2. This classification system is concerned with the measurement of the lesion as well as the degree of invasiveness as follows ï Stage 1 ï the lesion is confined, stage 1A ï cancer diagnosed only by microscopy, 1A1-measured stromal invasion less than 3.0mm in depth and 7.0mm in horizontal spread, 1A2-measured >3.0mm and <5.0mm and horizontal spread is <7.00mm,1B-clincally visible lesion confined to cervix, 1B1-visible lesion < 4.0cm, 1B2-visible lesion > 4.0cm, stage II-invades beyond uterus but not pelvic wall, IIAï tumour without parametrial invasion, IIAI-

clinically visible lesion < 4.0cm, IIA2-lesion > 4.0cm, IIB-lesion with parametrial invasions, III- spreads to pelvic wall and/or lower third of vagina and/or hydronephrosis, IV- spreads beyond muscosa or bladder or rectum and/or true pelvic, IVA-invades mucosa of bladder or rectum and IVB ï invades beyond pelvis.

**Treatment modalities**

The treatment of cervical cancer as NCI, (2014) and NCI,(2012) explained varies worldwide, largely due to large variances in disease burden in developed and developing nations, access to surgeons skilled in radical pelvic surgery, and the emergence of ñinfertility sparing therapyò in developed nations. Because cervical cancers are radiosensitive, radiation may be used in all stages where surgical options do not exist.

Micro invasive cancer (stage IA) as explained by NCI, (2014) may be treated by hysterectomy (removal of the whole uterus including part of the vagina). For stage IA2, the lymph nodes are removed as well. Alternatives include local surgical procedures such as a loop electrical excision procedure (LEEP) or cone biopsy. For IAI disease, a cone biopsy also called cervical conization is considered curative. If a cone biopsy does not produce clear margins (findings on biopsy showing that the tumor is surrounded by cancer free tissue, suggesting all of the tumor is removed), one more possible treatment option for patients who want to preserve the ovaries and uterus, providing for a more conservative operation than a hysterectomy. It is a viable option for those in stage I cervical cancer which has not spread. However, it is not yet considered a standard of care, as few doctors are skilled in this procedure. Even the most experienced surgeon cannot promise that a trachelectomy can be performed until after surgical microscopic examination, as the extent of the spread of cancer is unknown. If the surgeon is not able to microscopically confirm clear margins of cervical tissue once the patient is under general anesthesia in the operating room, a hysterectomy may still be needed. This can only be

done during the same operation if the patient has given prior consent. Due to the possible risk of cancer spread to the lymph nodes in stage I B cancers and some stage IA cancers, the surgeon, may also need to remove some lymph nodes from around the uterus for pathologic evaluation (NCI, 2014).

A radical trachelectomy can be performed abdominally or vaginally and there are conflicting opinions as to which is better. A radical abdominal trachelectomy with lymphadenectomy usually only requires a two to three day hospital stay, and most women recover very quickly (approximately six weeks). Complications are uncommon, although women who are able to conceive after surgery are susceptible to preterm labor and possible late miscarriage. It is generally recommended to wait at least one year before attempting to become pregnant after surgery. Recurrence in the residual cervix is very rate if the cancer has been cleared with the trachelectomy. Yet, it is recommended for patients to practice vigilant prevention and follow up care including pap screenings/colposcopy, with biopsies of the remaining lower uterine segment as needed (every 3-4 months for at least 5 years) to monitor for any recurrent in addition to minimizing any new exposures to HPV through safe sex practices until one is actively trying to conceive. Early stage (IB1 and IIA less than 4cm) can be treated with radical hysterectomy with removal of the lymph nodes or radiation therapy. Radiation therapy is given as external beam radiotherapy to the pelvis and brachytherapy (internal radiation). Patients treated with surgery who have high risk features found on pathologic examination are given radiation therapy with or without chemotherapy in order to reduce the risk of relapse. Larger early stage tumours ((B2 and IIA more than 4 cm) may be treated with radiation therapy and cisplatin-based chemotherapy, hysterectomy (which then usually requires adjuvant radiation therapy), or cisplatin chemotherapy followed by hysterectomy. Advanced stage tumours (IIB ï IVA) are treated with radiation therapy and cisplatin-based chemotherapy (NCI, 2012, NCI,

2014). The US Food and Drugs Administration, on June, 2006 approved the use of a combination of two chemotherapy drugs, hycamtin and cisplatin for women with late ï state (IVB) cervical cancer treatment. Combination treatment has significant risk of neutropenia, anemia, and thrombocytopenia side effects (Food and Drug Administration (FDA), 2007).

**Prognosis of cervical cancer**

Prognosis according to NCI, (2012) depends on the stage of the cancer. With treatment, the 5-year relative survival rate for the earliest stage of invasive cervical cancer is 92% and the overall (all stages combined) 5-year survival rate is 72%. These statistics may be improved when applied to women newly diagnosed bearing, in mind that this outcome may be partly based on state of treatment five years ago when the women studies were first diagnosed. With treatment, 80-90% of women with stage one cancer and 60-75% of those with stage two cancer are alive 5years after diagnosis. Survival rate decreased to 30-40% for women with stage three cancer and 15% or fewer of those with stage four cancer five years after diagnosis. According to the International Federation of Gynaecology and Obstetrics, survival improves when radiotherapy is combined with cisplatin based chemotherapy. As the cancer metastasizes to other parts of the body, prognosis dropped dramatically because treatment of local lesions is generally more effective than whole body treatment such as chemotherapy. Interval evaluation of the patient after therapy is imperative. Recurrent cervical cancer detected at its earlier stage might be treated with surgery, radiation, chemotherapy, or a combine of the three. Thirty-five percent of patients with invasive cervical cancer have persistent or recurrent disease after treatment. Average years of potential life lost from cervical cancer are 25.3. Regular screening has meant that precancerous changes and early stage cervical cancer have been detected and treated early. Figures suggest that cervical screening is saving 5,000 lives ear year in the

United Kingdom by preventing cervical cancer. about 1,000 women per year die of cervical cancer in the United Kingdom (NCI, 2012; Dillman, 2009; Merrazzo, et.al, 2011).

Medeiros, Bozzetti & Sanini, (2009) opined that there are two HPV vaccines (Gardasil and Cervarix) which reduce the risk of cancerous or precancerous changes in the cervix and perineum by about 93%. HPV vaccines are typically given to the women aged 9 ï 26 years as the vaccines are only effective if given before infection occurs. The vaccine is administered on three doses over the period of six months (first dose initially, second dose ï one month after the first and third dose ï six months after the second). A single dose of the vaccine cost $130 (N20, 800.00) while the full dose per year cost $390 (£297) (N62,400.00) excluding the cost of giving the shorts and/or doctorôs charge. The vaccines have been shown to b effective for at least 4-6 years, and it is believed they will be effective for longer, however, the duration of effectiveness and whether a booster will be needed is unknown. The high cost of this vaccine has been a cause for concern. Several countries have considered (or are considering) programmes to fund HPV vaccination (Harper, Gall, Quint, Jenkins & Dubin, 2008; NCI, 2012).

**Cervical cancer screening**

Cervical cancer screening is an essential part of a womanôs routine health care. It is a way to detect abnormal cervical cells including precancerous cervical lesions as well as early cervical cancers. Both precancerous lesions and early cervical cancers can be treated successfully. Routine cervical screening has been shown to greatly reduce both the number of new cervical cancers diagnosed each year and deaths from the disease (Tuteur, 2012, NCI, 2012).

Cervical cancer screening includes cytology based screening known as the Pap test or Pap smear, HPV testing, visual inspection using acetic acid or lugolôs iodine. Various other experimental techniques such as visual inspection with special lights (speculoscopy), taking

pictures for expert evaluation (cervicography), have been evaluated as adjuncts to or replacements for Pap smear screening especially in countries where Pap smear screening is expensive. This study is limited to the common screening tests which include; Pap smear, HPV testing and visual inspection with acetic acid or lugolôs iodine.

***Pap smear***

Doctor George Nicholas Papanicoloau born 13th May, 1833 began his medical career in Greek military as assistant surgeon after he graduated from Cornell University in 1904. In 1029 he began study of vaginal cytology and over time, he became familiar with the normal cytological changes that occur in the cervical cells. This familiarity allowed him to make what he called óthe most thrilling experienceô of his scientific career; his first discovery of cancer cells in a smear from the uterine cervix. In 1928, Dr. Papanicoloau (Pap) first presented his findings that cervical cancer could be diagnosed by means of vaginal smear in the paper. In 1943 Dr. Papôs work became widely known and accepted as he published óDiagnosis of cervical cancer by the vaginal smearô. This book described the process of preparing the cervical smear and the cytological changes that are seen as cervical cells changes from normal to precancerous and to cancer (Tuteur, 2012). Since world war 11, the Pap smear test has become the most widely used cancer screening method in the world and this has revolutionized the screening and treatment of cervical cancer thus decreasing deaths from cervical cancer in the United States dramatically - a reduction of 74 percent (ACS, 2009ôTuteur, 2012).

The main purpose of screening with Pap test is to detect abnormal cells that may develop into cancer if left untreated. It also finds non cancerous conditions such as infections and inflammation. It can also find cancer cells. In regular screened population, however the Pap test identifies most abnormal cells before they become cancer. Cervical cancer screening is recommended for all women to begin at about 3 years after they begin having vaginal intercourse, but no later than 21 years old. Screening should be done every year with the

regular Pap test or every 2 years using the newer liquid-based Pap test. Beginning at age 30, women who have had 3 normal Pap test results in a row may get screened every 2 to 3 years. Women older than 30 may also get screened every 3 years with either the conventional or liquid-based Pap test, plus the human papilloma virus (HPV) test. Women 70 years of age or older who have had 3 or more normal Pap test in a row and no abnormal Pap test results in the last 10 years may choose to stop having pap tests. Women who have had a total hysterectomy (removal of the uterus and cervix) may also choose to stop having Pap tests, unless the surgery was done as a treatment for cervical cancer or pre-cancer. Women who have had a hysterectomy without removal of the cervix should continue to have Pap tests. Some women who have a different history from than described above may need to have a different screening schedule for cervical cancer (Dolinsky, 2006; Smith, et.al, 2008; NCI, 2012).

There is consensus among medical organization for regular cervical cancer screening with Papanicolaou (Pap) tests in women who have ever been sexually active. However, the recommendations differ in the frequency of Pap tests and the age at which regular Pap tests should begin and stop. American College of Obstetrician and Gynaecologist (ACOG), American Cancer Society and American Medical Association recommend annual Pap tests and pelvic examination beginning at age 18 or when sexually activeô after 3 or more tests with normal results, Pap test may be performed less frequently on physicianôs advice. American Geriatric Society suggested Pap test every 3 years until age 70 (Smith, et.al, 2008, NCI, 2012).

Recommendations for how often a Pap smear should be done vary from once a year to once every five years, in the absence of abnormal results. Guidelines vary on how long to continue screening, but well screened women who have not had abnormal smears can stop screening about age 60 to 70 (Nanda, 2006). Guideline by NCI, (2012) further recommend that women age 30 to 65 should have HPV and Pap co-testing every 5 years of a Pap alone every 3 years.

In addition, women with certain risk factors may need to have more frequent screening or to continue screening beyond age 65 and women who have received the HPV vaccine still need regular cervical screening.

Fryhofer, (2013) highlighted key changes in cervical screening guidelines by American College of Obstertrics and Gynaecology (ACOG) that testing should not start until age 21 years regardless of behaviour, risk factor and age at first sex. For women aged 21-29 years, cytology screening should be every three years with no HPV testing. Ages 30 to 65 years should co-test every 5 years with both cytology and HPV testing. A high risk PHN DNA test is the preferred recommendation but cytology alone every three years is also acceptable. After age 65 Fryhofer, (2013) added that future screening recommendation depends on past screening results, that if previous tests have been negative the women get a pass and therefore require no more screening. Negative according to ACOG means three consecutive negative cytology results or two consecutive co-testing results or two consecutive co-testing results in the past five years. For women with history of CIN 2, 3, or adenocarcinoma, they must continue screening after age 65 whereas those who had done hysterectomy without history of CIN2 or higher should have no more screening. However, the guidelines do not apply to women who are immunocompromised, HIV positive or those who were exposed to Diethylstilbesterol (DS) in utero or with history of cervical cancer.

In preparation for the test NCI, (2012) explained that the health professional should be informed about all medicine the woman is taking because some birth control pills that contain estrogen or progestin may interfere with the test results. The health professional should also be informed if the woman had an abnormal Pap smear or might be pregnant. Women should go for the test one or two weeks after menses because this is when the health provider can get the cleanest and clearest cervical cells sample. Women should also avoid douching, vaginal

lubricant, foam or jellies, using tampons, having intercourse or bathing especially tub bath before the test because these can irritate the cervix, obscure the cervical cells so that the Pap smear cannot be accurately read (NCI, 2012; Saslow, Solomon, & Lawson, 2012).

To take a Pap smear, the woman lies on an examination table, a health care professional inserts a speculum into her vagina to widen so that the upper portion of the vagina and cervix can be seen. This procedure also allows the health professional to take a sample of cervical cells. The cells are taken with a wooden or plastic scraper and or a cervical brush and are then prepared for analysis in one or two ways. In a conventional Pap test, the specimen (or smear) is placed on a glass microscope slide and a fixative is added. In an automated liquid-based Pap cytology test, cervical cells collected with a brush or other instrument are placed in a vial of liquid preservative. The slide or vial is then sent to a laboratory for analysis. At a laboratory, the slid is stained, examined for abnormal cells and findings are reported (Augustine, Hamid, & El-Khoueiry, 2007; Moyer, 2012).

***Human papillomavirus test***

The human papillomavirus test (HPV) test is another technique for cervical cancer triage which detects the presence of human Papillomavirus infection in the cervix. The HPV is a virus that can lead to the development of genital warts, abnormal cervical cells or cervical cancer. It lives in mucous membranes such as those in the genital area or in the skin. Genital warts can show up weeks and even months after sexual contact with a person infected with HPV virus. Infection by genital HPV is very common and half of people who are sexually active will contact the HPV virus at some point in their lives yet many may not know but are responsible for HPV transmission (Dolinsky, 2006). It is more sensitive than the Pap smear (less likely to produce false negative results), but less specific (more likely to produce false positive results) and its role in routine screening is still evolving. This test is useful for interpreting equivocal

results from a pap test. If a woman has a Pap test result showing a typical squamous cell of underlined significance (ASCUS) but a subsequent HPV test is negative, she can be rescreened with Pap testing in 3 years; if the HPV is positive, the additional work up with a colposcopy is indicated.

The American Cancer Society favours using HPV testing with cytology in women aged 30 years and older. If both tests are negative, the next Pap test can be delayed for 5 years. The guidelines advice against using HPV testing to screen for cervical cancer in women younger than 30 years (Kane & Peckham, 2014).

In March 2013, the American Society for Colposcopy and Cervical Pathology (ASCCP) issued updated guidelines for managing women with abnormal cervical cancer screening results and diagnosed cancer precursors as follows: if the results of either Pap smear or HPV testing are positive but not both, co-testing is integrated into the following areas; colposcopy, HPV DNA typing, or both may be indicated. Routine screening is specific recommendation for women treated for cervical cancer. Adolescent screening is no longer recommended because women aged 21-24 years are at low risk for invasive cervical cancer, but are at high risk for HPV exposure and associated lesions (Moyer, 2012; Kane, et. al, 2014).

There are efforts to develop low cost HPV tests which might be used for primary screening of older women in less developed countries. The doctor may describe Pap test result to a patient as ónormal or abnormalô. It is important to remember that the abnormalities rarely become cancerous, and even severe lesions do not always lead to cancer. likewise,, HPV test result can either be ñpositiveò meaning that a patient is infected with a least one high risk HPV type or ñnegativeò, indicating that high risk HPV type were not found (NCI, 2012; Dolinsky, 2006).

NHS, (2013) reports that the HPV triage and a test of cure have been introduced into the cervical screening programme across England. HPV triage is a process whereby high risk (HR) HPV testing is used to manage women with low grade cervical abnormalities. The test is used when a woman has a cervical screening result of borderline or mild dyskaryosis or low grade squamous dyskaryosis. HPV test is important because it allows earlier identification. NHS, (2013) added that only 15 -20% of women with border line or mild smear result have a significant abnormality that needs treatment. HPV triage is done using the same sample of cells that were taken during cervical screening test and it will look for any high risk HPV infections. If the test is positive the woman is invited for a colposcopy, if negative she will be returned to routine screening every three or five years depending on her age and the country she lives in.

The test of cure process according to Moss, (2011) is being introduced because it is now known that women with a normal or low grade smear test and who are HR-HPV negative at six months after treatment are at very low risk of residual disease and do not need to be recalled for another screening appointment for three years. The test of cure process means that all post treatment smears (at six months) that are reported as normal, borderline or mild dyskaryosis will be tested for HR-HPV. Those women who are HR-HPV positive will remain at colposcopy while the HR-HPV negative women can be safely returned to recall in three years. It is estimated that the HR-HPV test of cure will allow approximately 80% of women who have been through treatment to avoid undergoing annual smear tests (Moss, 2011). NHS (2013) further explained that the HPV testing is clinically useful for risk assessment either in managing borderline cytology results or in predicting risk of treatment failure and even as a primary cervical screening test in place of cytology.

***Visual inspection of the cervix***

Visual inspection of the cervix can be done using acetic acid (white vinegar) (VIA) or lugolôs iodine (VILI) is done to highlight precancerous lesions so that they can be viewed with the naked eyes shifting the identification of precancer from the laboratory to the clinic (Ghosh, Ghandhi & Kochhar, 2012). The procedure eliminates the need for laboratories and transportation of specimens, require very little equipment and provide women with immediate test results. A range of medical professionals; doctors, nurses or professional midwives can effectively perform the procedure, provided they receive adequate instruction and supervision. As a screening test, VIA may function the same as or better than cytology in accurately identifying precancerous lesions. This has been demonstrated in various studies where trained physician and mid level providers correctly identified between 45% and 79% of women at risk of developing cervical cancer (Huchko, Sneden, Lesile & Bukusi, 2014; Jacqueline, Wittet & Kline, 2009 ).

By comparison Ghosh, et. al, (2012) stated that the sensitivity of cytology has been shown to be between 47% and 62% and of VIA is that result is dependent on the accuracy of individualôs interpretation. They highlighted the advantages of VIA over Pap smear in low resource settings to include; increase screening coverage, improve follow-up care and overall programme quality. VIA can offer cervical screening in more remote and less equipped health care settings and achieve higher coverage. Sharing the result of VIA with patients immediately makes it possible to screen and treat women during the same visit. This helps to ensure that follow-up care can be provided on the spot and reduces the number of women who may miss out of treatment because they are not able return to the clinic at another time.

Huchko, et. al, (2014) described the result of VIA as positive if a well defined, opaque dense aceto white lesion was seen near the border of the squamocolumnar junction one minute after the application of a 3-5% acetic acid solution. While the VILI result is positive if a yellow

stained lesion (saffron and mustard in colour) was seen near the squamocolumnar junction after the administration of lugolôs iodine. The test is unsatisfactory if the squamocolumnar junction could not be identified or for VILI if uptake of lugolôs iodine throughout the cervix was inadequate.

**Factors influencing cervical cancer screening**

Various reasons have been identified as barriers to regular cervical screening in various setting including the developing counties. Reasons for non-participation in Ibadan, Ilorin- Nigeria, included administrative failures vis-à-vis the unavailability of necessary screening facilities, reagents and equipment in the various clinical settings, lack of physician referral, unavailability of female health providers, lack of skills required by health care providers, considering oneself not at risk of developing cervical cancer, and lack of symptoms. Fear of embarrassment, pain or the detection of cancer, cost, poverty and economic reasons, general poor attitude to preventive health measures and the fact that matters relating to sex and sexual organs are not to be openly discussed especially in some religions and cultures because they feel their cultural and religious values are threatened (Odetola, 2011; Aboyeji, Ijaiya, & Jimoh, 2004; Zapka, Taplin, Anhang, Cranos & Yabross, 2010).

Hopelessness concerning diagnosis of cancer, perception of test as being unnecessary and discomforting, inconvenient clinic hours, administrative failures, as well as distrust of the medical community were factors from United States and Mexico (Zapka, et. al, 2010; Wright, Faseru, Kuyinu, & Faduyile, 2011).

**Theoretical framework underlying the study of knowledge and practice of cancer screening among women**

The study used the Health Belief Model (HBM) and the tripartite theory of knowledge.

**The Health Belief Model**

The Health Belief Model (HBM) is one of the first theories of health behaviour. It was developed originally in the 1950s by a group of US public Health service social psychologists Hachbaun, Rosenstock & Kegel who wanted to explain why so few people were participating in programmes to prevent and detect disease. This was in response to the failure of a free tuberculosis (TB) health screening programmes. Since then, the HBM has been adapted to explore a variety of long-and short-term health behaviors, including sexual risk behaviors and the transmission of HIV/AIDS. The model attempts to explain and predict health behavior by focusing on the attitudes and beliefs of individuals (Croyle, 2009; Polit, et. al. 2008; Basavanthappa, 2009).

According to Croyle (2009) HBM is a good model for addressing problem behaviour that evokes health concern and it stipulates that the health-related behaviour is influenced by a personôs perception of the threat posed by a health problem and by the value associated with his or her action to reduce that threat.

**Concept and Core Assumptions of Health Belief Model**

The health belief model proposes that a personôs health related behavior depends on the personôs perception of four critical areas:

- The severity of a potential illness.
- The personôs susceptibility to that illness
- The benefits of taking the preventive action and
- The barriers to taking the action (Croyle, 2009).

The HBM was originally spelt out in terms of four constructs representing the perceived threat and net benefits: perceived *susceptibility,* perceived *severity,* perceived *benefits,* and perceived *barriers*. These concepts were proposed as accounting for peopleôs ñreadiness to actò. An added concept, *cues to action,* would activate that readiness and stimulate overt behavior. A recent addition to the HBM is the concept of *self-efficacy*, or oneôs confidence in the ability to successfully perform an action. This concept was added by Rosenstock and others in 198 to help the HBM better fit the challenges of changing habitual unhealthy behaviours, such as being sedentary, smoking, or overeating.

The major components of HBM according to Croyle, (2009), Polit & Beck (2008) include perceived susceptibility, perceived severity, perceived benefits and cost, motivation and enabling or modifying factors.

- *Perceived susceptibility:* This is a personôs perception that a health problem is personally relevant or that a diagnosis is accurate. It is also oneôs opinion of chances of getting a condition and a key determinant for seeking knowledge for a positive health behaviour.
- *Perceived severity:* This is oneôs opinion of how serious a condition and its consequences are. This concept acts as initiator of action because even when an individual recognizes personal susceptibility, action will not occur unless the individual perceived the severity to be high enough to have serious organic or social implication.
- *Perceived benefits:* These are a personôs belief in the efficacy of the advised action to reduce risk or seriousness of impact. In this component, the patient believes that a certain treatment will cure the illness or help prevent it. Perceived costs on the other hand are the complexity, duration and accessibility of the treatment.

- *Perceive barrier:* This has to do with the individualôs opinion of the tangible and psychological costs of the advised action, i.e. those factors that can hinder or prevent the individual from taking the recommended action.
- *Cues to action:* These are strategies to activate peoplesô ñreadiness to actò. They are the ñhow toò information which guide the individual to apply the recommended action.
- *Self efficacy:* This component explains the confidence in oneôs ability to take action i.e. the personôs believe in their ability to carry out preventive behaviour.
- *Motivation:* This is the desire to comply with the treatment.
- *Modifying factors:* Among the modifying factors that have been identified are personality variables, patient satisfaction and socio-demographic factors.

**Related studies applying HBM**

Health belief model have become a popular conceptual framework in nursing studies focuses on patient compliance and preventive health care practices. For instance, Kiguli, et. al (2010) is a study on current knowledge, attitude and practice of women on breast cancer and mammography at Mulago Hospital, the HBM was used to explain why majority of the women practiced BSE. Majority of the women were in a low income group and could not afford CBE and mammography ï perceived barrier. However, these women perceived the susceptibility of developing breast cancer and also perceived the benefits of breast cancer screening so, they perform BSE which they could afford in other to stay prevented or early detection ensured.

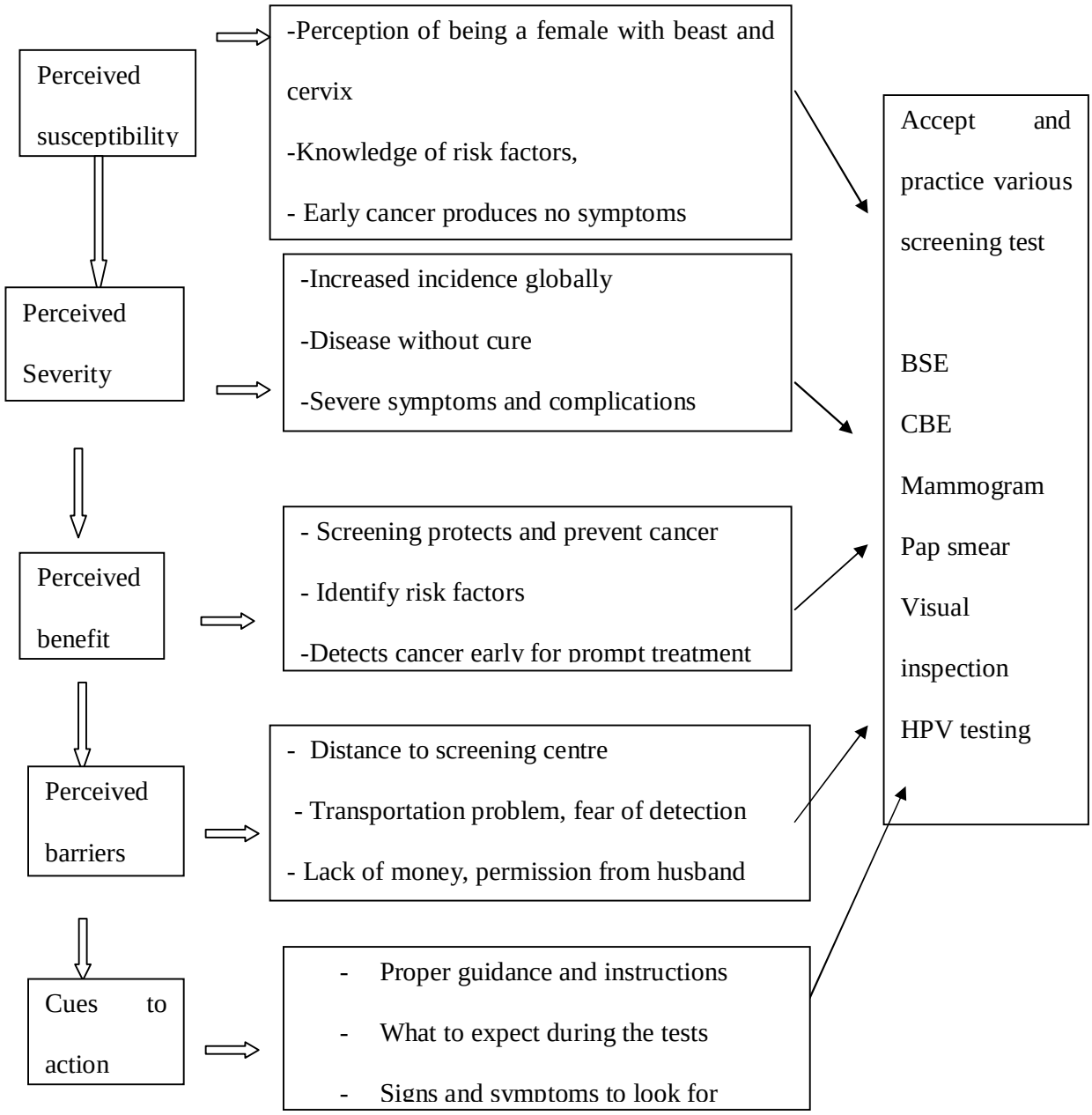
Similarly, in a community-based intervention to improve breast and cervical cancer screening conducted by Paskettz, Tatum, Angustino, Velez & Dignan, (2011) in Winston-Salem and Greenboro in North Carolina, the HBM was used to identify barriers to breast and cervical cancer screening among the women and this allowed the individual barriers to be addressed.

**Application to the study**

The health belief model is applicable to this study because it has to do with individual woman and her health behaviour. The components of interest which will guide the variables of concern are: perceived susceptibility, perceived severity, perceived benefit, perceived barriers and cues to action.

- Perceived susceptibility ï This individual has to perceive the susceptibility of developing a breast and cancer before making up her mind to participate in the screening exercise. She has to believe that the consequences of developing cancer without knowledge are significant enough to try to avoid or prevent it by screening. Womenôs willingness or eagerness to participate in the screening tests can be highly influenced by their perception that they are women with breast and cervix and are prone or likely to develop breast and cervical cancers.
- Perceive severity ï The knowledge that breast and cervical are serious and incurable diseases, with severe consequences, complications and disease burden will make the women to accept and practice the various screening tests.
- Perceived benefit ï If the women are convinced that when they go for screening they will be free from breast and cervical cancers or cancer cells will be detected on time for early treatment they will have the interest to participate in the screening programmes.
- Perceived barriers ï The women have to be able to identify the barriers of factors preventing them from being screened for breast and cervical cancers, for example, ignorance of screening centre, distance to the centre or transportation problems, cost s of the tests, permission of the husband, fear etc. It is only when the barriers have been identified that ways can be explored (remedies) to reduce the barriers.
- Cues to action ï The women will engage in the practice seriously if they received guidance such as information on where to go for screening or adequate knowledge about breast and cervical cancers/screening. They will perform BSE if they received adequate instruction

and also have confidence in their ability to perform it. The above explanations are presented on the sketch below:




A sketch of HBM concepts as applied to the study

**The tripartite theory of knowledge**

Knowledge according to Jones, (2014) is a justified true belief. This is the modern version of Platoôs definition. On this view, belief will only count as knowledge when they are true (accord with the objective facts) and when the person who holds the belief has evidence or justification for it. There is a tradition that goes back as far as Plato that holds that three conditions must be satisfied in order for one to possess knowledge. This account known as the tripartite theory of knowledge, analyses knowledge as justified true belief.

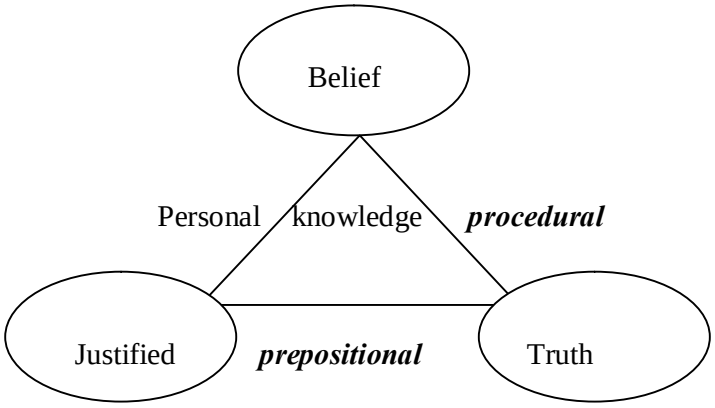
The tripartite theories say that if one believes something with justification, and it is true then one knows it, otherwise, one does not believe. The first condition for knowledge, according to the tripartite theory is belief. Unless one believes a thing, one against know it. Even if something is true and one has excellent reasons for believing that it is true, one cannot know it without believing it. The second condition for knowledge is truth. If one knows a thing then it must be true. No matter how well justified or sincere a belief, if it is not true that it cannot constitute knowledge. If a long-held belief is discovered to be false, then one must conclude that what was thought to be known was in fact not known. This means that knowledge must be knowledge of the truth. The third condition in justification (evidence) in order to know a thing, it is not enough to merely correctly believe it to be true; one must have a good reason for doing so. Lucky guesses cannot constitute knowledge; we can only know what we have good reason to believe.

In Plato theory of knowledge, reality operates as a standard against belief and perception of reality. True belief alone is not the same as knowledge. In order to have knowledge, the individual must have both a true belief about something and sufficient justification (evidence) for that belief. Philosophers typically divide knowledge into three categories; personal

knowledge, procedural knowledge and prepositional knowledge. Understanding the connection between them can be helpful in clearly understanding what is and what is not.

- **Personal knowledge-** this is knowledge by acquaintance. This is the type people claim to have when they say they know this or that. That knowledge of people, places or things.
- **Procedural knowledge –** this is knowledge of how to do something, that is knowing the activities involved in a particular thing, possessing the skills and actually being able to do this things.
- **Prepositional knowledge –** this is the kind philosophers care about most. It is also known as knowledge of fact or position.

The tripartite theory of knowledge is intuitively very plausible. It is still used as a working model by philosophers most of the time.




A sketch of the tripartite theory of knowledge

**Application to the study**

The tripartite theory of knowledge is applicable to this study of knowledge and practice of breast and cervical cancer screening among women in Uyo. The theory analysis knowledge as the justified true belief which explained that an individual can only be said to know something if she believes that thing to be true with justification or evidence. The three conditions which must be satisfied for one to possess knowledge are component of interest example belief, truth and justification. In this study, women cannot practice breast and cervical screening if they lack the knowledge about the screening tests. Knowledge is therefore an essential determinant factor which influences the women practice of the various screening tests. The tripartite theory explains that the women must truly believe with sufficient justification that breast and cervical cancer exist and are serious and severe disease conditions, and that various screening tests are available and can help detect them at a stage they can be controlled.

The types of knowledge; personal, procedural and propositional knowledge are also applicable.

- Personal knowledge ï the study deals with individual woman. Each woman has to know the people who conduct the screening, the place where the screening can be done and the things in which the screening are done for.
- Procedural knowledge ï in this type, the women must know the activities involved during the screening, they must also know how to carry out breast self-examination.
- Preposition knowledge ï each individual woman has to know that breast cancer affect the breast while cervical cancer affect the neck of the womb (cervix) and the facts about the various screening tests on these positions, before they can heartily accept to participate in the screening programmes.

**Empirical studies on knowledge and practice of cancer screening among women**

In Argentina, a hospital-based study (IARC, 2012) of womenôs knowledge about cervical Cancer, Pap smear and Human Papillomavirus and its relation to screening was conducted on a sample of 200 women. These were women who attended a hospital located in the metropolitan area of Buenos, Aires, between September 2008 and February 2009. One hundred (100) of these women were screened in the last three years and 100 were not screened. IARC, (2012) reported that 40% of the women who had been screened, compared to 73% of those not screened had inadequate knowledge about Pap smears (P = 0.001), and 47% of screened and 30% of non-screened women reported that they had ever heard about human Papilloma virus (P = 0.013). According to IARC, (2012) the key determinants of womenôs participation in screening are knowledge and beliefs about cervical cancer and preventive strategies.

In a cross-sectional study designed to assess the knowledge, attitude and practice of community dwelling women in Nigeria by Ukobia, Bunker, Okonofua, & Osime, (2006), the study participants had poor knowledge of breast cancer screening (42.3%). The practice of BSE was low (43.2%), only 9.1% had CBE and none had mammogram. It was found that participants with higher level of education were 3.6 times more likely to practice BSE. Participants in this study group who were engaged in self-employed small businesses such as trading, hair dressing and secretarial jobs had significantly poorer scores compared with those employed in professional jobs such as teaching, sales and nursing. Although age was not significantly related to scores, they found that older women appeared to have higher scores compared with younger women.

Wrunfeld, Martin, Prendirille & Parask, (2008) conducted a study of knowledge and belief about breast cancer screening among British women. 70% of the women had knowledge of various screening test. Majority of the women with knowledge were the younger women

whereas the older women demonstrated poorer knowledge of b breast cancer screening which influenced their practice. This poorer knowledge and practice was apparent among the lower social economic status who attributed the signs of breast cancer to the aging process and therefore ignored any preventive strategy to help prevent its development. It was also argued that older adult may have a number of symptoms of other illness and should not be expected to seek help for symptoms that are not causing them any pain or that have little effect on their functioning. They therefore concluded that age, religion and marital status were not significantly related to knowledge score and practice of BSE and CBE.

In another cross-sectional study in Western Turkey by Zundar, Ozmen, Ozturk, Haspolat & Coban, (2006) on knowledge, attitude and practice of BSE and mammography in a group of women, it was discovered that only 56.1% of the women had sufficient knowledge of breast cancer screening. Level of knowledge was the only variable significantly associated with BSE and mammography practice ($P = 0.011$, $P = 0.007$). BSE performers among the study group were more likely to be women who exhibited higher confidence and perceived greater benefits from BSE practice. The study also showed that the practice of monthly BSE was low with the explanation that, women in the sample did not believe they were susceptible to breast cancer. Another explanation was lack of educational in breast cancer as only 56.1% had sufficient level of knowledge.

Zapka, et. al, (2010) also in a population based study of 3197 women in Morelos, Mexico discovered that women who were aware of the purpose of Pap smear were three times as likely to use the screening than those who did not know the purpose. Similarly, in a cross-sectional study carried out in Mexico City, Anhang, et. al, (2010) reported that women who knew the purpose of Pap smear were six times as likely to participate in screening programmes. The

above findings indicate that in Argentina lack of knowledge was associated with not being screened.

In a chart review by Samuel, Pringle, Nathaniel, James, Fielding, & Fairfield, (2009) of rate of cancer screening among Cambodian, Somalia and Vietnamese women immigrants to United State of America, Somali women were at higher risk of being unscreened for breast, cervical and advanced age or with low education levels. In addition, the study indicated the need for increased public education and promotional campaigns to increase participation in breast cancer screening programmes (ACS, 2010).

In a descriptive cross-sectional study by Kiguli, Francis, Conzaga, Kamooya & Nakatudde, (2010) conducted at Mulago Hospital, Uganda, on knowledge about the incidence and risk factors of breast cancer, only few women were aware of the high incidence of breast cancer. more than half of the women did not know about the risk factors for breast cancer. On knowledge about the methods of investigation of breast cancer, all women in this study had never had a mammogram. Majority reported that they did not undergo mammography because they have never heard of it and its use in investigating breast cancer. The few women who had knowledge about mammography said that they had been told it was expensive and could not afford, hence not seeking for it. Some women who had done CBE reported embarrassment especially when being examined by a male doctor which changed their attitude towards breast screening procedure. Majority of the women frequently practiced BSE and occasionally sought for CBE, but did not go for mammography.

It is thought that BSE makes women more aware of their breasts which in turn may lead to an earlier diagnosis of breast cancer. The rationale behind extending BSE practice as a screening test is the fact that breast cancer is frequently detected by women themselves without any other

symptoms and regular practice increases the probability of detecting breast cancer at an early stage. Most of the women in this study were from diverse backgrounds and mainly from lower social status which is the reason they could not afford mammography and CBE (Kuguli, et.al, 2010).

The result of a descriptive cross sectional study by Urasal & Darji, (2011) using questionnaires on 137 nurses to determine nursesô awareness of cervical cancer and their own screening practice at a hospital in Tanzania, showed that less than half of the nurses had adequate knowledge regarding cervical cancer. There was a significant association between knowledge levels of causes of cervical cancer and transmission of HPV and age. Knowledge was more adequate among the young nurse (P = 0.027) and knowledge differed significantly between cadres. Registered nurses had more adequate knowledge than enrolled nurses (p = 0.006). The majority did not know screening intervals and a few were aware of HPV vaccine. Most nurses (84.6%) had never had a Pap smear examination.

In a quasi-experimental study conducted by Wright, Faseru, Kuyinu, & Faduyile, (2011) between April and July in 2006 to assess the effect of an educational programme on cervical awareness for market women in an urban area of Lagos, Nigeria with 18,150 people per square kilometer and carried out in three phases pre intervention, intervention and post intervention phases. During the pre-intervention phase, baseline information on awareness of the Pap test and cervical cancer screening uptake was collected from participants (intervention and control groups) by trained interviewers using an interviewer administered questionnaires. During the intervention phase, health education was provided on cervical cancer screening test with emphasis on the Pap smear, its benefit and procedure and on proximate health institutions that provide such services to the intervention group. In addition to counseling, culturally tailored

and Reader-friendly educational material were designed, based on finding from the baseline survey in English and Yoruba (native) languages for the intervention group. The study showed that less than 15% of respondents had heard about cervical screening using the Pap smear in the intervention group, the proportion of those who had heard of the Pap smear rose from 6.9% pre-intervention to 56.6% post ï intervention. The difference between both groups post-intervention was found to be statistically significant ($P < 0.01$). Over 95% of respondents in both groups had never taken a Pap smear test. Despite the educational programme, there was no statistically significant different between those who had had a pap test before and after the intervention in either group ($P > 0.05$). Pre-intervention, the commonest reason in both samples for not doing a Pap smear was lack of awareness. Other options were reasons such as no time, no interest, fear and not being promiscuous. The majority of respondents in both groups expressed willingness to have a Pap smear in the future (Wright, et. al, 2011).

A study by Odetola (2011) on knowledge, attitude and practice of cervical cancer screening among women in primary health center in Ibadan south-east LGA, Oyo State showed that majority of the women (71.3%) possessed very poor knowledge about cervical cancer/ screening while 18/5% claimed never to have heard about it before. Only 6.5% were aware of Pap smear, 8.45% had Pap smear done while 23.0% had a visual inspection done and majority 89.7% indicated the willingness to have it done in the near future. Barriers identified in this study include cost of screening, lack of time, lack of awareness and disapproval by husbands.

In a research conducted by Obiechina & Mbamara (2009) on knowledge, attitude and practice of cervical cancer screening among sexually active women in Onitsha, southeast Nigeria, the result showed that 76(26.85%) of the respondents were aware of cervical cancer screening and thirty six (47.4%) of the aware group knew that the test was a screening test for cervical cancer. there was significant association between the educational status and the knowledge of

Pap test while there was no significant association between the educational status and the utilization of the Pap test. This shows that there is decreased awareness and low utilization of cervical screening test in our environment. There is therefore an urgent need to establish an aggressive and sustainable awareness campaign on the preventive nature of cervical cancer and further establish an organized cancer screening programme.

Another study by Nwankwo, Aniebue, Aguwa, Anarado & Agunwah, (2011) designed to ascertain the knowledge of the women in Nigeria to cervical cancer, their practice of cervical cancer screening and factors hindering the use of available screening services, revealed that only 15.5% of the respondents were aware of availability of cervical cancer screening services. The awareness significantly varied with level of educational attainment (P>0.0001). Only 4.2% had ever done Pap smear test and all were referred for screening. The most important factors hindering the use of available cervical cancer screening services were lack of knowledge (49.8%) and the feeling that they had no medical problems (32.0%). They concluded that there is very poor knowledge and practice of cervical cancer screening among Nigeria women and also recommended that effective female education and free mass screening are necessary for any successful cervical cancer screening programme in Nigeria.

In a similar study by Aniebue & Aniebue, (2010) to assess awareness and practice of cervical cancer screening amongst female students in a Nigerian University, where a cross-sectional survey of 394 students was done, about 23.1% identified the Pap smear as a screening test. Only 5.2% of respondents had ever been screened and 52.8% reported willingness to be screened. The major reason for unwillingness to get a pap smear was absence of symptom (31.7%).

**Summary of Literature Review**

Critical analysis of reviewed literature showed that breast and cervical cancers constitute a major disease burden worldwide. Available screening tests exist for early detection and prompt therapy which improves survival rate. Cancer detection investigation plays a pivotal role in reducing development of cancers, early detection and reducing cancer mortality rate. Despite the wealth of literature available globally documenting knowledge, attitude and practice of women about breast and cervical cancers and some literature on the Africa and some parts of Nigerian experience, the situation in Akwa Ibom State remains unknown, there is paucity of literature from the State in this area. Gakwaya, Galukannde, Jombwe, kavuma & Lunaga, (2008) report that mammography is still performed only on a low proportion of the women population in Uganda. Hindrances to accessing mammography and other cancer screening services not only affect Uganda but also other African countries like Nigeria. The aforementioned gaps formed the basis for this study. Hopefully, findings from this study will help fill the existing gaps in knowledge and practice of breast and cervical cancers screening among women in Uyo, Akwa Ibom State.

# CHAPTER THREE

# RESEARCH METHODS

This chapter describes the various methods used in the study. These include the research design, setting, study population, sample and sampling technique, instrument for data collection, etc.

## Research Design

A descriptive survey design of a cross sectional type was used for the study. This design was preferred because it deals with problems or situations that are felt over a wide area by a large population with a view to ascertaining what exists in their natural setting and it involves the collection of data once. It also permits documentation of aspects of the situation studied.

## Setting of the study

The study was conducted in Uyo municipality. Uyo is the capital of Akwa Ibom State since 23rd September, 1987 and is about 10 square kilometers and lies at the centre of Uyo local government area. It is bounded on the north by Northern Uruan, Ibiono Ibom and Itu, on the south by Ikono Clan, Ibesikpo, Nsit Ibom and Southern Uruan, on the West by Oku Clan and Abak and in the east by Etoi Clan, Uruan North and Central. Uyo municipality is structured based on the original master plan of Uyo capital city development map with the concentric area being Ibom Plaza,

By way of worship: The people are predominantly Christians; they have unique but various traditions and cultures. By occupation, they are mostly farmers, traders and civil servants. They are of Ibibio stock and their common language is Ibibio. However, there are other minor languages and same are being understood by the people. Visitors are also accommodated in Uyo municipality, they also have their own languages, religion and culture. For the purpose of

this study, Uyo municipality was divided into five already existing distinct zones, using the major roads that terminate at Ibom plaza.

Zone one ï this includes Ikot Ekpene road after plaza up to Itam junction.

Zone two ï covers Aka - Nung Udoe road after plaza and up to Aka Etinan junction

Zone three ï describes Nelson Mandela road after the Uyo central post office up to Ekom Iman junction

Zone four ï include Wellington Bassey road, Ikpa road and the road network in the area.

Zone five ï represent Oron - Nwaniba road after the plaza up to Itiam Etoi

**Study Population**

The population of the study consisted of women aged between 18 to 50 years who lived in Uyo and were present in the area during the study. According to the National Population Commission, Census Report, (2006), the population of women in Uyo local Government Area is 150,263. Women in Uyo municipality form one tenth of women in Uyo LGA which is 15,026 while women in the age bracket of 18 to 50 years form 39% of the municipalityôs women population which is 5,860 (Uyo LGA population Register, 2007; National Population Commission, Census Report, 2006). The target population therefore was 5,860.

**Sample**

The sample size for the study which was determined through power analysis at a confidence level of 95% was 382. According to Suresh Chandrashekara, (2012) the proportion of the population who will drop out before the study ends or refuse to provide adequate information will not be known at the beginning of the study. Therefore, it is necessary to add an attrition rate which is generally 10% . The sample size was further increased by 10% to have a sample

of 420. (See calculation in appendix 111). This sample was proportionately allocated to the zones with each zone contributing 18% of the sample depending on their population size.

**Distribution of sample according to the zones**

| Zones | No. of houses | No. of houses selected (18%) | No. of women selected per household | Total No. of women Selected |
|---|---|---|---|---|
| 1 | 164 | 30 | 3 | 90 |
| 2 | 136 | 24 | 3 | 72 |
| 3 | 152 | 27 | 3 | 81 |
| 4 | 124 | 22 | 3 | 66 |
| 5 | 204 | 37 | 3 | 111 |
| Total | 780 | 140 | 3 | 420 |

**Sampling Procedure**

The study employed three stages of sampling technique. The first method was a stratified sampling method which adopted the already existing strata of five zones in Uyo. The second method used a simple random sampling to choose the first house in each stratum, then a systematic sampling technique was used to select the required number of houses from the already existing house numbering (Uyo Capital City House Numbering Register, 2010). Simple random sampling method was used to select three women each from every $5^{th}$ house (18%) in all the zones to obtain the required sample size of 420. If the eligible women were less in the selected houses, the next household was used to complete the number. Only women aged 18 to 50 years and found living in houses during data collection were included in the study. The selection included only living houses to ensure that only women who lived in Uyo are included in the study. This is because Uyo is the capital city and women from other

neighbouring villages and local government operate businesses on daily basis, hence shops and other business centres were not included in the study.

**Instrument for data collection**

The instrument for data collection in the study was a researcher constructed questionnaire. The questionnaire consisted of twenty- six (26) items in five sections A, B, C, D and E. Section A elicited information about the demographic characteristics of the respondents with four (4) items while Sections B and C consisted of seven (7) items each to elicit information on knowledge of breast and cervical cancer screening. Sections D and E elicited information about practice of breast and cervical cancer screening respectively with four (4) items each. The questionnaire was made up of closed ended questions which required the respondents to choose their best responses by ticking in the boxes or columns.

**Validity of instrument**

The instrument was submitted to the researcherôs supervisor and two senior lecturers in the department to assess the face and content validity. Their suggestions and inputs were used to effect necessary corrections in the instrument.

**Reliability of instrument**

This was done by a pilot testing of the instrument on forty- two women aged 18-50 years in Ikot Ekpene, Akwa Ibom State outside the study area. The data obtained were subjected to a split half reliability testing and using the Pearson Product Moment Correlation Co-efficient formula to ascertain the reliability of the instrument. The reliability co-efficient obtained was r = 0.89 which showed a strong positive reliability of the instrument.

**Ethical consideration**

An application was written to the research ethics committee of the Directorate of Planning, Research and Statistics (PRS) of Akwa Ibom State Ministry of Health requesting for ethical clearance and same was obtained (see appendix V11).

The researcher also applied for and obtained permission to carry out the study in Uyo municipality (See appendix VI and VIII). A letter of introduction was obtained from the head of department of nursing sciences, University of Nigeria, Enugu Campus which enabled the researcher gain access to the study area (See appendix V). Verbal consent was obtained from all respondents and voluntary participation was ensured.

**Procedure for data collection**

Six research assistants which were three registered nurses/ midwives and three students nurses were trained on the instrument, the inclusion criteria (women aged 18-50years, women found in living houses only, women present during the period of study) and the technique for data collection.

Copies of a letter of introduction, authority letter and ethical clearance were made available to the research assistants. These documents were presented to the respondents to gain their acceptance and co-operation. The questionnaire were then administered by the researcher and six research assistants to the respondents in their homes by face to face contact in the various selected houses of the area from 9.00am to 5.00 pm each day excluding Sundays. The English version of the questionnaire was administered to the literate respondents while the Ibibio version was used for those who did not understand English. A total of eight (8) weeks was used for data collection. Copies of the questionnaire were completely filled by the researcher and assistants each day.

**Method of data analysis**

The data collected were arranged, coded and scored to allow for statistical computation. Analysis was done using the International Business Machines (IBM), statistical package for social sciences (SPSS) version 20. 0. All yes responses were considered correct and scored one points while ôNoô responses were incorrect and scored no point. Multiple choice questions had only one correct answer for each question which was scored one point while all other options were incorrect and scored no point. Descriptive statistics including computation of frequencies and percentages were used for all variables, test of association in hypotheses one and two was done using chi square while Pearson product moment correlation (PPMC) was used to test hypotheses three and four for relationship between womenôs age, level of education and the practice of breast and cervical cancer screening at a level of significance $P < 0.05$.

## CHAPTER FOUR

## PRESENTATION OF RESULT

This chapter presents the results of the study on knowledge and practice of breast and cervical cancer screening among women in Uyo, Akwa Ibom state. Four hundred and twenty (420) questionnaires were administered and same completely filled with a return rate of 100%. The results are presented according to the Research questions and Hypotheses.

**Table 1:** Demographic distribution of Respondents

**n = 420**

| S/N | VARIABLE | FREQUENCY | PERCENTAGE |
|---|---|---|---|
| 1 | Age | | |
| | 18 ï 28 years | 162 | 38.6 |
| | 29 ï 39 years | 120 | 28.6 |
| | 40 ï 50 years | 138 | 32.8 |
| | (Mean age 33.4, SD 9.073) | | |
| 2 | Education Level | | |
| | Primary | 86 | 20.5 |
| | Secondary | 243 | 57.8 |
| | Tertiary | 91 | 21.7 |
| 3. | Marital status | | |
| | Single | 138 | 32.9 |
| | Married | 261 | 62.1 |
| | Divorced | 21 | 5.0 |
| 4. | Religion | | |
| | Christianity | 405 | 96.4 |
| | Islamic | 13 | 3.1 |
| | Traditional | 2 | 0.5 |

Table 1 shows the demographic distribution of the respondents. 162 (38.6%) women were aged 18-28 years, 120(28.6%) were 29-30years while 138 (32.8%) women were aged 40-50 years. The mean age of the respondents, was 33.4 with a standard deviation of 9.073. Many of the

respondents 243 (57.8%) had attended up to secondary school level, 91 (21.7%) attended up to tertiary while 86(20.5%) attended only the primary education. Similarly, most women 261(61.1%) were married, 138(32.9%) were single while only 21(5.0%) were divorced. Majority of participants 405 (96.4%) were Christians while only 13(3.1%) and 2 (0.5%) were of the Islamic and traditional religions respectively.

**Research Question 1**

**What is the women's knowledge on breast/cervical cancer screening in Uyo?**

Items 5 to 11 and 12 to 18 of the questionnaire were analyzed to answer this research question.

**Table 2: Knowledge of breast cancer screening among women**

n = 420

| S/N | Variables | Yes (%) | No (%) | Total |
|---|---|---|---|---|
| 1 | Body part screened for Breast cancer | 419(99.8) | 1(0.2) | 420 |
| 2 | Appropriate screening test | | | |
| | - BSE | 280 (66.7) | 140 (33.3) | 420 |
| | - CBE | 103 (24.5) | 317 (75.5) | 420 |
| | - Mammogram | 10 (2.4) | 410 (97.6) | 420 |
| 3 | Eligible women | 67(16.0) | 353(84.0) | 420 |
| 4 | Screening centres | | | |
| | - BSE | 161 (38.3) | 259 (61.7) | 420 |
| | - CBE | 80 (19.0) | 340 (81.0) | 420 |
| | - Mammogram | 21 (5.0) | 399 (95) | 420 |
| 5 | Who should perform the test | | | |
| | - BSE | 193(45.9) | 227(54.1) | 420 |
| | - CBE | 31(7.4) | 389(92.6) | 420 |
| | - Mammogram | 30(7.1) | 390(92.9) | 420 |
| 6 | Frequency of screening | | | |
| | - BSE | 41 (9.8) | 379 (90.2) | 420 |
| | - CBE | 1 (0.2) | 419 (99.8) | 420 |
| | - Mammogram | 0 (0) | 420 (100) | 420 |
| 7 | Signs looked for | 404 (96.2) | 16 (3.8) | 420 |

Table 2 above describes the knowledge of women toward breast cancer screening. Majority 419(99.8%) of the women had knowledge of the body part that is usually screened for breast cancer. 66.7 percent (280) knew BSE, 24.5% (103) knew clinical breast examination and only 2.4% (10) had knowledge of mammogram as a screening test for breast cancer. Only 67(16.0%) were able to indicate the group of women which should be screened for breast cancer. Few women 38.3%, 19.0% and 5.0% had knowledge of where the various tests should be done. Similarly, few women had knowledge of who should perform the tests. 9.8% knew how often BSE should be done, 0.2% knew frequency of CBE while none of the respondents knew the frequency of screening for mammogram. Majority of the women 96.2% (404) could identify the various signs which are often looked for during screening.

**Table 3**: Knowledge of cervical cancer screening among women in Uyo.

n = 420

| S/N | Variables | Yes (%) | No (%) | Total |
|---|---|---|---|---|
| 1 | Body part screened | 328 (78.1) | 92 (21.9) | 420 |
| 2. | Screening tests | | | |
| | - Visual Inspection | 116 (27.6) | 304 (72.4) | 420 |
| | - Pap Smear | 19 (4.5) | 401 (95.5) | 420 |
| | - HPV | 0)0) | 420 (100) | 420 |
| 3. | Eligible women to screen | | | |
| | - Visual Inspection | 81 (19.3) | 339 (80.7) | 420 |
| | - Pap Smear | 81 (19.3) | 339 (80.7) | 420 |
| | - HPV | 0(0) | 420 (100) | 420 |
| 4. | Age to commence screening | 64 (15.2) | 356 (84.8) | 420 |
| 5 | Where to go for screening | | | |
| | - Visual Inspection | 228 (54.3) | 192 (45.7) | 420 |
| | - Pap Smear | 228 (54.3) | 192 (45.7) | 420 |
| | - HPV | 228 (54.3) | 192 (45.7) | 420 |
| 6. | How often to screen | | | |
| | - Visual Inspection | 67 (16.0) | 353 (84.0) | 420 |
| | - Pap Smear | 67 (16.0) | 353 (84.0) | 420 |
| | - HPV | 0 (0.0) | 420 (100.0) | 420 |
| 7. | Signs looked for | 278 (66.2) | 142 (38.8) | 420 |

Table 3 shows the knowledge of women on cervical cancer screening in Uyo. Majority of the respondents 328 (78.1%) were able to identify the cervix as the body part which is usually screened for cervical cancer. One hundred and sixteen women (27.6%) indicated knowledge of visual inspection, 19 (4.5%) of Pap smear and none for HPV DNA testing. Few women 81 (19.3%), and 64(15.2%) also indicated their knowledge of who should screen and the age to commence screening respectively. For signs looked for during screening and where to go for screening, 278 (66.2%) and 228 (54.2%) indicated their knowledge respectively.

**Research Question 2:**

**What is the practice of breast / cervical cancer screening among women in Uyo.**

Items 19 to 22 and 23 to 26 of the questionnaire were analyzed to answer this research question.

**Table 4**: Practice of breast cancer screening among women in Uyo.

n= 420

| | Variable | Yes | % | No | % | Total |
|---|---|---|---|---|---|---|
| * | Ever practiced | 228 | 54.3 | 192 | 45.7 | 420 |
| * | Practiced within 3 years | 73 | 32.0 | 155 | 68.0 | 228 |
| * | Test type practiced: BSE | 173 | 75.9 | 55 | 24.1 | 228 |
| | CBE | 55 | 24.1 | 173 | 75.9 | 228 |
| | Mammogram | 0 | 0 | 228 | 100 | 228 |
| * | Number of times practiced: | | | | | |
| | > Once | 37 | 16.2 | 191 | 83.8 | 228 |
| | Once | 191 | 83.8 | 37 | 16.2 | 228 |

Table 4 shows the practice of breast cancer screening among women in Uyo. 54.3% (228) of the respondents agreed to have practiced breast cancer screening before. Thirty-two percent (73) of the women who have practiced did that within the past three years while 155(68%) practiced more than three years ago. Most of the women identified BSE as the test they have practiced (173), few (55) identified CBE whereas no respondent identified mammogram. Majority of the women (83.8%) who practiced did it once while only few 16.2% practiced more than once.

**Table 5**: Practice of cervical cancer screening among women in Uyo.

n = 420

| | Variable | Yes | % | No | % | Total |
|---|---|---|---|---|---|---|
| * | Ever practiced | 70 | 16.7 | 350 | 83.2 | 420 |
| * | Practiced within 3 years | 33 | 47.1 | 37 | 52.9 | 70 |
| * | Test type practiced: Pap | 1 | 1.4 | 69 | 98.6 | 70 |
| | Visual | 69 | 98.6 | 1 | 1.4 | 70 |
| | HPV | 0 | 0 | 70 | 100 | 70 |
| * | Number of times practiced > Once | 15 | 21.4 | 55 | 78.6 | 70 |
| | Once | 55 | 78.6 | 15 | 21.4 | 70 |

In Table 5, only 70 (16.7%) of respondents have been screened before whereas 350 (83.3%) have never been screened. Out of those screened, 33(47.1%) were screened within the last 3 years while the remaining 37(52.9%) women did that more than 3 years ago. Only 3.6% (15) of women screened did that more than once and 55 (13.1%) screened only once. Visual inspection was the main test which the women practiced 69(16.4%)

**Research Questions 3:**

Is there any relationship between womenôs age / level of education and the practice of breast cancer screening?

**Table 6**: Frequency distribution of womenôs age and practice of breast cancer screening

n = 420

| PRACTICE | AGE | 18 – 28 years Frequency (%) | 29 – 39 years Frequency (%) | 40 – 50 years Frequency (%) | Total |
|---|---|---|---|---|---|
| * Screened Before: No | | 63 (38.9) | 52 (43.3) | 77 (55.8) | 192 |
| Yes | | 99 (61.1) | 68 (56.7) | 61 (44.2) | 228 |
| * Last screened | | | | | |
| Within 3 years | | 37 (37.4) | 21 (30.9) | 15 (24.6) | 73 |
| More than 3 years | | 62 (62.6) | 47 (69.1) | 46 (75.4) | 155 |
| * Which test: | | | | | |
| - BSE | | 93 (93.9) | 58 (85.3) | 22 (36.1) | 173 |
| - CBE | | 6 (6.0) | 10 (14.7) | 39 (63.9) | 55 |
| - Mammogram | | 0 (0) | 0 (0) | 0 (0) | 0 |
| * No of time screened: | | | | | |
| - Once | | 83 (83.8) | 59 (86.8) | 49 (80.3) | 191 |
| - More than once | | 16 (16.2) | 9 (13.2) | 12 (19.7) | 37 |

Table 6 presents the practice of breast cancer screening of women in Uyo based on their ages. Most of the women aged 18 ï 28 years 99(61.1%) agreed to have practiced breast screening before. Similarly, more than half of the women 68 (56.7%) in the ages of 29 ï 39 years also practiced. Contrarily, (55.8%) of those aged 40-50 years did not practice. Many of the women who practiced breast screening agreed to have done so more than three years ago with (62.6%, 69.1% and 75.4%) for the different age groups while very few women 37.4%, 30.9% and 24.6% practiced within past three years in the respective age groups. Breast self examination was mostly practiced by age 18 ï 28 years (93, 53.8%) while 65.4% (36) of age group 40 ï 50

years practiced CBE. Few respondents have screened more than once in all age groups with 16.2%, 13.2% and 19.7% respectively.

**Table 7**: Frequency distribution of womenôs level of Education and practice of breast cancer screening n = 420

| **Level Of Education** | **Primary Frequency (%)** | **Secondary Frequency (%)** | **Tertiary Frequency (%)** |
|---|---|---|---|
| **Practice-breast Screening** | | | |
| * Ever Practiced : Yes | 16 (18.6) | 136 (60.0) | 76 (83.5) |
| No | 70 (81.4) | 107 (40.0) | 15 (16.5) |
| * Last screened | | | |
| Within 3 years | 12 (75.0) | 33 (24.3) | 23 (30.3) |
| More than 3 years | 4 (25) | 103 (75.7) | 53 (69.7) |
| * Which test: | | | |
| - BSE | 13 (81.3) | 116 (85.3) | 44 (57.9) |
| - CBE | 3 (18.7) | 20 (14.7) | 32 (42.1) |
| - Mammogram | 0 (0) | 0 (0) | 0 (0) |
| * Number of times | | | |
| screened : - Once | 14 (87.5) | 120 (88.2) | 57 (75) |
| - More than once | 2 (12.5) | 16 (11.8) | 19 (25) |
| Total | 86 (100) | 243 (100) | 91 (100) |

Table 7 shows the practice of breast cancer screening based on womenôs level of education. Few women 16(18.6%) with primary education were screened before whereas 136(60%) of those who had secondary and 76 (83.5%) of those within tertiary education agreed to have been screened before. Majority 75% of women aged 18 ï 28 years agreed to have been screened within past three years. Breast self examination was practiced more in the age range 28 ï 39 years while CBE was practiced more by women aged 40 ï 50 years. No age group practiced mammogram. Very few women 12.5% (Primary), 11.8% (secondary) and 25% (tertiary) were screened more than once while the majority others. 87.5%, 88.2% and 75% for the three educational levels were screened only once.

**Research Questions 4: Is there any relationship between women's age / level of education and the practice of cervical cancer screening?**

**Table 8**: Frequency distribution of womenôs age and practice of cervical cancer screening.

n = 420

| PRACTICE | AGE | 18 – 28 years Frequency (%) | 29 – 39 years Frequency (%) | 40 – 50 years Frequency (%) |
|---|---|---|---|---|
| * Screened Before: Yes | | 12 (7.4) | 31 (25.8) | 27 (19.6) |
| No | | 150 (92.6) | 89 (74.2) | 111 (80.4) |
| * Last screened: | | | | |
| Within 3 years | | 12 (100) | 5 (16.1) | 17 (62.9) |
| More than 3 years | | 0 (0) | 26 (83.9) | 10 (37.1) |
| * Which test: | | | | |
| - Visual inspection | | 12 (100) | 31 (100) | 26 (96.3) |
| - Pap smear | | 0 (0) | 0 (0) | 1 (3.7) |
| - HPV test | | 0 (0) | 0 (0) | 0 (0) |
| * Number of times | | | | |
| screened : - Once | | 0 (0) | 0 (0) | 10 (37.1) |
| - More than once | | 12 (100) | 31 (100) | 17 (62.9) |
| Total | | 162 (100) | 120 (100) | 138 (100) |

In Table 8, few women 12 (7.4%) in age group 18 - 28years have been screened before. Also, 25.8% and 19.6% in age group 29 ï 39 years and 40 ï 50 years respectively agreed to have been screened before. All women 100% in age group 18 ï 28 years who practiced did so within the past three years. Age 40-50years also indicated that 17(62.9%) of women were screened within the last three years. Majority of the women (83.9%) in ages 29-39 years who have been screened did that more than three years ago. The most practiced test was visual inspection across the three age groups with100% for ages 18-28 years and 29-39years respectively. Age group 40-50years did visual inspection with 96.3% while only 1(3.7%) practiced Pap smear. One hundred percent of both aged 18-28 and 29-39 10(37.1%) in 40-50years age group screened once while 17(62.9%) screened more than once.

**Table 9**: Frequency distribution of womenôs level of Education and practice of cervical cancer screening

n = 420

| **Level Of Education**<br>**Practice-cervical Scr.** | **Primary Frequency (%)** | **Secondary Frequency (%)** | **Tertiary Frequency (%)** |
|---|---|---|---|
| * Practiced Before: Yes | 20 (23.3) | 36 (14.8) | 14 (15.4) |
| No | 66 (76.7) | 207 (85.2) | 77 (84.6) |
| * Number of times | | | |
| screened : - Once | 13 (65) | 29 (80.5) | 13 (92.6) |
| - More than once | 7 (35) | 7 (19.4) | 1 (7.14) |
| * Last screened | | | |
| Within 3 years | 13 (65 | 15 (41.7) | 5 (35.7) |
| More than 3 years | 7 (35) | 21 (58.3) | 9 (64.3) |
| * Which test: | | | |
| - Visual inspection | 19 (95) | 36 (100) | 14 (100) |
| - Pap smear | 1 (0.5) | 0 (0) | 0 (0) |
| - HPV test | 0 (0) | 0(0) | 0 (0) |
| Total | 86(100) | 243(100) | 91(100) |

Table 9 relates level of education of women to practice of cervical cancer screening. Majority of the women across the levels of education have not been screened before. Only few women 20 (23.3%) in primary level, 36 (14.8%) in secondary and 124 (15.4%) in tertiary agreed to have been screened before. Sixty five percent of those screened in primary, 80.5% in secondary and 92.6% in tertiary have only been screened once. 13 (65%), 15 (41.7%) and 5 (35.7%) in primary, secondary and tertiary levels respectively indicated being screened within the past three years. Majority of the respondents in primary level 19(95%) and all the respondents in secondary and tertiary levels practiced visual inspection. Only 1 (0.5%) of the women in primary level of education practiced Pap smear.

**Research Hypothesis 1**

**There is no significant association between knowledge of women and practice of breast cancer screening.**

**Table 10**: Chi square test of association between knowledge and practice of breast cancer screening among women in Uyo. n = 420

| S/N | Knowledge of breast cancer | | BSE | CBE | Mam. | No. Prac. | Total | $\chi^2$ | P.value |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Body part screened: | Yes | 173 | 55 | 0 | 191 | 419 | 4.93 | 0.176995 |
| | | No | 0 | 0 | 0 | 1 | 1 | | |
| 2 | Appropriate screening test: | BSE | 91 | 18 | 0 | 171 | 280 | 18.00 | 0.262666 |
| | | | 32 | 15 | 0 | 93 | 140 | | |
| | | CBE | 26 | 14 | 0 | 63 | 103 | | |
| | | | 18 | 7 | 0 | 292 | 317 | | |
| | | Mammo | 5 | 1 | 0 | 4 | 10 | | |
| | | | 1 | 0 | 0 | 409 | 410 | | |
| 3 | Eligible women : | Yes | 50 | 15 | 0 | 2 | 67 | 17.62 | 0.00527* |
| | | No | 123 | 40 | 0 | 190 | 353 | | |
| 4. | Screening centre: | BSE | 109 | 22 | 0 | 30 | 161 | 10.23 | 0.805028 |
| | | | 22 | 5 | 0 | 232 | 259 | | |
| | | CBE | 12 | 24 | 0 | 44 | 80 | | |
| | | | 14 | 0 | 0 | 326 | 340 | | |
| | | Mammogram | 10 | 3 | 0 | 9 | 21 | | |
| | | | 6 | 1 | 0 | 292 | 399 | | |
| 5 | Who performs the test: | BSE | 124 | 17 | 0 | 52 | 193 | 6.26 | 0.975003 |
| | | | 24 | 15 | 0 | 188 | 227 | | |
| | | CBE | 11 | 8 | 0 | 12 | 31 | | |
| | | | 3 | 5 | 0 | 381 | 389 | | |
| | | Mammogram | 7 | 8 | 0 | 15 | 30 | | |
| | | | 4 | 2 | 0 | 384 | 390 | | |
| 6 | How often to screen: | BSE | 32 | 7 | 0 | 2 | 41 | 8. 97 | 0.879081 |
| | | | 46 | 23 | 0 | 310 | 379 | | |
| | | CBE | 0 | 1 | 0 | 0 | 1 | | |
| | | | 39 | 6 | 0 | 374 | 419 | | |
| | | Mammogram | 0 | 0 | 0 | 0 | 0 | | |
| | | | 56 | 18 | 0 | 346 | 420 | | |
| 7 | Signs looked for: | Yes | 170 | 50 | 0 | 184 | 404 | 6.83 | 0.077625 |
| | | No | 3 | 5 | 0 | 8 | 16 | | |

Level of significance P < 0.05*, df = 3, 15

Table 10 shows association between knowledge and practice of breast cancer screening among women in Uyo. Knowledge for body part screened for breast cancer, appropriate tests and screening center showed no significant association with practice of breast cancer screening with P value above 0.05 thus; 0.176995, 0.262666 and 0.805028. Similarly, knowledge of who performs the tests, how often to screen and signs looked also showed no significant association with practice of breast cancer screening with P values 0.975003, 0.879081 and 0.077625. However there was a significant association between knowledge of eligible women to screen and practice of breast cancer screening with $\chi^2$ value 17.62 and P value 0.00527. Thus the hypothesis was rejected which shows a significant association between knowledge of women on eligible women to screen and practice of breast cancer screening with a corresponding low score for both.

**Research Hypothesis II:**

**There is no significant association between women's knowledge and practice of cervical cancer screening.**

**Table 11**: Chi square analysis of association between knowledge and practice of cervical cancer screening among women in Uyo.

| S/N | Knowledge of breast cancer | Visual inspect | Pap Smear | HPV Test | No Prac. | Total For know | $\chi^2$ | P.value |
|---|---|---|---|---|---|---|---|---|
| 1 | Body part screened: | | | | | | | |
| | Yes | 48 | 1 | 0 | 279 | 328 | 5.26 | 0.153719 |
| | No | 21 | 0 | 0 | 71 | 92 | | |
| 2 | Appropriate Test: | | | | | | | |
| | Visual Inspection | 36 | 0 | 0 | 80 | 116 | 18.71 | 0.227177 |
| | | 6 | 0 | 0 | 298 | 304 | | |
| | Pap Smear | 9 | 1 | 0 | 9 | 19 | | |
| | | 5 | 0 | 0 | 296 | 401 | | |
| | HPV test | 0 | 0 | 0 | 0 | 0 | | |
| | | 13 | 0 | 0 | 407 | 420 | | |
| 3 | Eligible women to : Yes | 51 | 0 | 0 | 30 | 81 | 26.11 | 0.00001* |
| | No | 36 | 1 | 0 | 302 | 339 | | |
| 4 | Age to commence : Yes | 31 | 0 | 0 | 33 | 64 | 17.31 | 0.00061* |
| | No | 39 | 1 | 0 | 316 | 356 | | |
| 5 | Screening centres: | | | | | | | |
| | Yes | 63 | 1 | 0 | 165 | 228 | 7.11 | 0 .06729 |
| | No | 6 | 0 | 0 | 186 | 192 | | |
| 6 | How often to screen: | 35 | 0 | 0 | 37 | 678 | 23.76 | 0.069283 |
| | Visual Inspection | 18 | 0 | 0 | 335 | 353 | | |
| | Pap Smear. | 11 | 0 | 0 | 55 | 67 | | |
| | | 5 | 1 | 0 | 348 | 353 | | |
| | HPV test | 0 | 0 | 0 | 0 | 0 | | |
| | | 5 | 0 | 0 | 415 | 420 | | |
| 7 | Signs looked for: Yes | 58 | 1 | 0 | 220 | 278 | 6. 75 | 0.080308 |
| | No | 11 | 0 | 0 | 131 | 142 | | |

Level of significance $P < 0.05$*, df = 3, 15, 3

Table 11 shows the result of chi-square analysis of association between knowledge and practice of cervical cancer screening. There was a significant association between knowledge

of eligible women to be screened and age to commence screening and the practice of cervical cancer screening with calculated $\chi^2$value 26.11 (P = 0.00001) and $\chi^2$ 17.31 (P = 0.00061) respectively. The hypotheses were rejected which indicated that women who demonstrated low knowledge for the tests also had low scores for the practice. There was no significant association between womenôs knowledge of all other variables and practice of cervical cancer screening with P value greater than 0.05. Therefore the hypotheses were accepted which showed that women indicated knowledge of the various tests but without corresponding scores for the practice of those tests.

**Hypothesis III**: There is no significant relationship in womenôs age and level of education and practice of breast cancer screenings.

**Table 12:** Pearson Correlation analysis of womenôs age, education and practice of breast cancer screening in Uyo.

n = 420

| Variable | N | r-value | df | p-value |
|---|---|---|---|---|
| * Age 18 - 28years and practice | 162 | 0.590 | 159 | 0.00001* |
| * Education and practice | 162 | 0.464 | 159 | 0.00001* |
| * Age 29 ï 39 years and practice | 120 | -0.001 | 117 | 0.991351 |
| * Education and practice | 120 | 0.301 | 117 | 0.000836* |
| * Age 40ï 50 years and practice | 138 | 0.038 | 135 | 0.658129 |
| * Education and Practice | 138 | 0.513 | 135 | 0.00001* |

Level of significance P< 0.05*

Data on Table 12 shows the Pearson Correlation values of age, education and practice of breast screening. The r-value of age 18-28 years and practice was 0.590 and 0.464 for education and practice at degree of freedom 159 and P value < 0.05 (0.00001, 0.00001). This was significant to reject the hypothesis which shows that the practice of breast cancer screening was influenced by their age and level of education as most respondents have attended up to secondary and tertiary levels which increased their awareness and then practice. r-value of -

0.001 and P= 0.991351 shows there is no relationship between age 29-39years and practice because though the age is increased in this group their practice was low with a negative r-value but their education and practice value was 0.301 (P = 0.000836), lower than 0.05 at 117 degree of freedom and the null hypothesis was rejected. This shows a significant relationship between education and practice in this age group as majority that practiced had attended higher levels of education.

Pearson r - 0.38 and P = 0.65812 showed no relationship between age 40-50years and practice of breast screening. This means that their level of practice was low despite their increased age, but the r-value 0.513(P = 0.0001) for education and practice indicated a significant relationship between education and practice because majority of the women who practiced had attained secondary and tertiary education.

**Hypothesis IV: There is no significant relationship in women's age, education and the practice of cervical cancer screening.**

**Table 13**: Pearson Correlation analysis of womenôs age, education and practice of cervical cancer screening in Uyo.

n = 420

| Variable | N | r-value | df | P-value |
|---|---|---|---|---|
| * Age 18 - 28years and practice | 162 | 0.197 | 159 | 0.011983* |
| * Education and practice | 162 | 0.125 | 159 | 0.112991 |
| * Age 29 ï 39 years and practice | 120 | 0.125 | 117 | 0.065005 |
| * Education and practice | 120 | -0.14 | 117 | 0.127236 |
| * Age 40ï 50 years and practice | 138 | 0.011 | 135 | 0.112991 |
| * Education and Practice | 138 | -0.15 | 135 | 0.079085 |

P< value 0.05*

Table 13 shows correlation of age, education and practice of cervical cancer screening. Age 18-28years and practice with r-value 0.197 and P value 0.011983 was significant enough to reject the null hypothesis. This shows a significant relationship between age and practice of cervical screening because this is the youngest age group and majority of the respondents did not practice the screening which could be attributed to non exposure to these tests. Education and practice for this age group had r-value 0.125 and P value 0.112991 at df 159 and showed no significant relationship meaning that their level of practice did not correspond with their educational level. Some women in this age group who practiced had only primary education and those that had up to tertiary did not practice.

The values for ages 29 ï 39 years (P = 0.065005, 0.127236 ) and 40 -50 years (0.112991, 0.079085) were not significant and null hypotheses accepted which showed that the practice of cervical screening was low irrespective of their increased age and advanced educational level this means that their increased age and advanced level of education did not cause them to practice the screening.

# CHAPTER FIVE

# DISCUSSION OF FINDINGS

This chapter presents discussion of the major finding according to research questions and hypotheses. It also highlighted on; implication of the study for nursing, limitation of the study, recommendations, suggestion for further studies, summary and conclusion.

**Research Question I**

**What is the women's knowledge of breast/cervical cancer screening in Uyo?**

Findings of the study presented in Tables 2 and 3 provided answers to research question 1. Majority of the women 99.8% had knowledge of the body part usually screened for breast cancer. Also 66.7% demonstrated knowledge of BSE while only 24.5% and 24% had knowledge of CBE and mammogram respectively. Very few women knew the group of women who should be screened for breast cancer, the screening centers and how often the screening tests should be done whereas majority (96.2%) could identify the various signs looked for during screening.

Findings shown in Tables 3 indicated that majority of the women (78.1%) had knowledge of the body part usually screened for cervical cancer. 54.3% and 66.2% also knew where to go for screening and signs looked for during screening respectively. Most of the respondents had no knowledge about the various screening tests (27.3%), who should be screened (19.3%), age to commence screening (15.2%) and how often to screen (16%).

It has been observed from the findings that the respondents were more knowledgeable in the body part screened for breast cancer than other variables. This could be due to the name of the test ôbreast cancer screeningô in which the women could easily identify the body part for screening. Their knowledge of body signs looked for also indicates that the women had seen people with breast cancer presenting the various signs before. This finding corresponds with

Wrungfeld, et. al, (2013) in a study of knowledge and belief of breast cancer screening among British women in which 70% of the women had knowledge of various screening tests for breast cancer and signs of breast cancer often looked for during screening. Both studies were conducted in Urban areas and majority of the women in the study group were educated, exposed to health facilities/personnel and also have access to information from the media which helped to increase their knowledge.

The findings of knowledge of cervical cancer screening parallels the findings of Aniebue, et. al, (2010) who noted in their cross sectional survey of students in a Nigerian University that 23.1% had knowledge of Pap smear as a screening test. It is also in agreement with the findings of IARC, (2012) from a study of womenôs knowledge of cervical cancer, pap smear and human papilloma virus test where 73% of the women had inadequate knowledge about pap smear and human Papilloma virus (P = 0.013).

However, the result is in contrast to findings of Ukobia, et. al, (2006) among community dwelling women who had 42.23% for knowledge and practice of breast cancer screening. The low percentage score for knowledge and practice of breast cancer screening by this group of women could be as a result of unavailability of screening programmes and in exposure of the women to information about breast screening.

**Research Question II**

**What is the practice of breast / cervical cancer screening among women in Uyo?**

Results presented in Tables 4 and 5 were used to answer this research question. More than half of the respondents (54.3%) had been screened for breast cancer before, with only (32%) screened in the past three years. The most practiced test was BSE (75.9%) and CBE only (24.1%) while none of the respondents screened for mammogram. Majority of the women (83.8%) who screened did that only once while only 16.2% practiced more than once. Breast

self examination seems to be the most readily available breast screening test for the women because any healthy woman could be engaged in the act of touching her breast once in a while though it may not be in a regular or prescribed manner, whereas the CBE could have been performed as routine examination on women who present to the hospital for other health issues.

Only (16.7%) of the women had been screened for cervical cancer before and (47.1%) of those screened did that within the last three years and a negligible percentage of the women (3.6%) were screened more than once. Visual inspection was the main test practiced by the women (98.6%). This finding indicates that most of the women in the study group did not practice cervical cancer screening and the negligible few who practiced did only visual inspection which shows that this group of women had the opportunity to be screened during gynaecological examination for other problems.

In line with this finding is a descriptive cross sectional study by Kiguli, et. al (2010) on knowledge and practice of breast cancer screening where the group of women studied frequently practiced BSE but did not go for mammogram. The findings of practice of cervical cancer screening corresponds with the findings of Aniebue, et. al, (2010) where only a negligible percentage of women (5.2%) had ever done cervical cancer screening.

**Research Question III**

**Is there any relationship between women's age / level of education and the practice of breast cancer screening?**

Tables 6 and 7 present findings which were used to answer this research question. Three age groups 18- 28years, 29-39years and 40-50years as well as three levels of education, primary, secondary and tertiary were identified.

In age 18-28years, most of the women (61.1%) agreed to have been screened before but more than three years ago (62.6%) and only once (83.8%). Women in the middle age group 29-39 years (56.7%) also have been screened before, (69.1%) screened more than three years ago and only once (86.8%). The last age group 40-50 years had only 44.2% of women who agreed to have been screened before. Majority (75.4%) of the women had screened more than three years ago and 80.3% screened only once.

18. 6% of the women in this study in the primary level of education practiced breast screening before and 75% of them screened within past three years with only 12.5% screening more than once. Women in the secondary and tertiary levels practiced by 136 (60%) and 76 (83.8%), but the majority of them still practiced once (88.2% and 75%) respectively. Few women 24.3% and 30.3% practiced within past three years and the test mostly practiced by the women was BSE (81.3%, 85.3% and 57.9%) for the three levels of education respectively.

An observation of the above findings indicates that the practice of breast cancer screening is influenced by age and educational level of the respondents. Although there was no outstanding higher percentage for practice of breast cancer screening across the age groups and educational levels, the younger women aged 18 -28 years seem to have practiced more than others and those in the secondary and tertiary educational levels also practiced more. Those who practiced were not regular as many of them practiced just once and more than three years ago. The test

mostly practiced by the women was BSE with only few for CBE and none for mammogram. This finding is suggestive of the fact that women who practiced CBE may have done so by chance during a visit for other problems and that they did not have adequate knowledge about mammogram and hence did not practice.

The findings of this study is in line with those of Wrunfeld, et. al, (2008) where majority of the women with knowledge were younger women while the older women demonstrated poorer knowledge of breast cancer screening and this greatly influenced their practiced. It also corresponds with Ukobia, et. al, (2006) who found in their study that very few participants had knowledge of breast cancer screening and only 43.2% practiced BSE with no practice of mammogram. It was found that participants with higher level of education were three to six times more likely to practice BSE. This explains the fact that the young age group is exposed to more education than the older group and education helps to increase knowledge which can also influence practice. More so, the older women as commented by Wrungfeld, et. al, (2008) may attribute signs of breast cancer to aging process and as such neglect breast screening programmes.

**Research Question IV**

**Is there any relationship between women's age / level of education and the practice of cervical cancer screening?**

Findings presented in tables 8 and 9 answer the above research questions. Few women in the three age groups have been screened before (7.4%, 25.8% and 19.6%). All the women that screened for cervical cancer screening in age 18 - 28years (100%) screened within the past three years more than once and with visual inspection only. Contrarily, majority of the women (83.9%) in age group 29-39years screened more than three years ago. Only 19.6% of women in

age 40-50years screened for cervical cancer before and 62.9% of them screened within these three years for visual inspection (96.3%), Pap smear (3.7%) and HPV test 0%.

The result also showed a lower percentage of practice of cervical cancer screening across the levels of education with the only practice of Pap smear in the primary level. The low percentage of the practice of cervical cancer screening could be attributed to lack of knowledge of cervical cancer screening and to the fact that the screening is invasive or has to intrude into the womenôs privacy. A greater percentage of women if not all irrespective of age and level of education has a high value and respect their privacy and may bluntly refuse to accept any therapy or examination of that area especially by the opposite gender and when they are still healthy. This finding closely relates with Wright, et. al, (2011) who discovered in their study among market women in Lagos that 95% of respondents irrespective of age had never taken pap smear test.

**Hypothesis 1**

There is no significant association between knowledge of women and practices of breast cancer screening.

The above hypothesis was tested using chi square in table ten. Finding showed a significant association between knowledge of eligible women to screen and practice of breast cancer screening with $\chi^2$ value 17.62 and P value 0.00527. Thus the hypothesis was rejected which shows that the women had low score for knowledge of eligible women with a corresponding low score for practice of breast cancer screening. There was no significant association between knowledge of body part, screening center, signs looked for and practice of breast cancer screening with P value less than 0.05 hence the null hypotheses were accepted. This indicated that a sizeable number of the women had knowledge on breast cancer screening but without corresponding high scores for the practices. The result of the study is in contrast with findings

of Zundar, et. al, (2006) in a cross sectional study of women in Turkey on knowledge, attitude and practice of BSE and mammogram. It was discovered that 56.1% of the women had sufficient knowledge of breast screening and their level of knowledge was significantly associated with the practice of BSE and mammogram.

**Hypothesis 2**

There is no significant association between womenôs knowledge and practice of cervical cancer screening.

Findings of the study presented in table eleven showed a significant association between knowledge of eligible women to be screened, age to commence screening and the practice of cervical cancer screening with calculated $\chi^2$value 26.11 (P = 0.00001) and $\chi^2$ 17.31 (P = 0.00061) respectively. The null hypothesis therefore rejected for eligible women and age to commence cervical cancer screening.

There was no significant association between womenôs knowledge of all other variables and practice of cervical cancer screening with P value greater than 0.05 (0.153719, 0.227177, 0.80308). Therefore the null hypothesis was accepted for body part screened, appropriate test and signs looked for.

The finding is partly in line with the result of a descriptive cross sectional study by Urasal, et.al, (2011) to determine nursesôs awareness of cervical cancer and their screening practice in Tanzania. Findings showed that less than half of the nurses had adequate knowledge regarding cervical cancer screening, very few knew about HPV, majority did not know about screening interval nor had Pap smear. They concluded that there was significant association between knowledge and practice because only those who had adequate knowledge or awareness of cervical cancer and the screening practices were those who practiced them.

**Hypothesis 3**

There is no significant relationship between womenôs age and level of education and the practice of breast cancer screening.

The result of Pearson correlation presented in table 12 employed to test this hypothesis showed r = 0.590 and 0.464 with P = 0.00001 and 0.00001 which was significant to reject the hypothesis of no relationship, indicating that the practice of breast screening was related to age and level of education in the first age group 18- 28 years. This relationship may be due to the fact that this age group is the youngest and are very conscious of their breast size and shapes or feels and looks. They may also have educational opportunities where concept of breast cancer and screening practices are taught, this may however increase their knowledge and enhance practice. There was no relationship between age and practice in ages 29 - 39 years and 40 ï 50 years with their r-values 0.001 and 0.038 (P = 0.991351, 0.658129) which were greater than 0.05. The women in these age groups, though they were advanced in age, their practice scores were low.

However there was a significant relationship between education and practice in these age groups r = 0.301 and 0.038 (0.00836, 0.00001), This may be because most of the women who practiced breast screening in this age group had attended up to secondary and tertiary level of education.

The finding of Ukobia, et. al, (2006) indicated that age was not significantly related to practice but it was observed that older women appeared to have higher scores for breast cancer screening compared to younger women. This was in contrast to the findings of this study. However it was observed that participants with higher level of education were three to six times likely to practice BSE which corresponds with the findings of this study.

**Hypothesis 4**

There is no significant relationship in women age, education and practice of cervical cancer screening.

Pearson correlation was employed to test the above hypothesis. The findings presented in table 13 showed r - value 0.197 (P = 0.011983) for age 18-28 years and practice. This was significant so the null hypothesis was rejected indicating that age was related to Practice. Women in the age group were the youngest and may be inexperienced and not exposed to cervical cancer screening programmes which eventually prevented them from practicing. However, the r-value for education and practice in this age group indicated that there was no relationship because, though the women in this group had educational opportunities and attended up to tertiary level, those who actually practiced had only primary level of education. The r-values obtained for age 29-39 years and 40-50 years and practice (0.169 and 0.011) were not significant with P values 0.065005 and 0.112991 indicating absence of relationship between age and practice of cervical screening. This is seen in their low scores for practice despite their advanced ages. The correlation of education and practice for those two groups also indicated non significant relationship with P values greater than 0.05 and the null hypothesis was accepted.

**Implications of the findings for Nursing**

The findings of this study have shown that women in Uyo in their responses did not have adequate knowledge of breast and cervical cancer screening and also did not practice the selected tests used in this study well. This may be attributed to lack of exposure to knowledge and facts about breast and cervical cancer screening programmes as well as non existence of screening services before now in the State. The obvious implication of this result for nursing is that nurses have a very important role to play by increasing access to information which clearly

communicates the harm of cancers and benefits of breast and cervical cancer screening to enable the women to make informed decisions about their health.

The implementation of cancer screening programmes in the State has just commenced with establishments of screening centers. Therefore nurses in Akwa Ibom State need to undergo training on the performance of these tests so that they can effectively advice/educate the women as well as carry out the tests on them to help reduce the incidence of breast and cervical cancer in the State. It also implies that nurses being the largest group of health personnel who usually make the first and last contact with the patients/clients in the hospital should be adequately equipped with knowledge and be able to recommend the women who come in contact with them for breast and cervical cancer screening as this will help increase their awareness and enhance practice in the State. It also helps to reduce morbidity / mortality associated with the two conditions.

**Limitations of the study**

This Study was carried out among women of different ages and educational levels in which some of them could not read nor understand English language. Hence, language barrier posed a major limitation to the study. Extra time was needed to explain the translated copies of the questionnaire (Ibibio version) to the understanding of the affected respondents and this delayed the data collection period. The researcher and assistants are from Ibibio hence this limitation was properly handled.

Women found only in living houses in the area of study were recruited into the study and were engaged in one form of domestic chore or the other during the visit. This affected the timely completion and also delayed the data collection. This was however handled by excising patience and making repeat visits to ensure no one was missed out.

The study had to do with information about womenôs private life which could have impacted negatively on the womenôs responses, hence children and males were not allowed closer to

where the women were interviewed. Note, even fellow women were not allowed. It was strictly private. This also delayed the data collection period. No such study had been carried out in Uyo before; as a result there was paucity of previous literature from the State and this was compensated by using literature from outside the country and other States of Nigeria.

**Recommendations**

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

- The role of health workers as information sources in breast and cervical cancer and their screening should be increased.
- The establishment and sustenance of institutional framework and policy guidelines that will enhance adequate and urgent dissemination of information about breast and cervical cancer screening to all women in Akwa Ibom State.
- Health education programmes should be targeted at women through various media.
- Health education should be channeled through women friendly agencies \ organizations such as hospital, ante and post natal clinics, religious organizations and feminist organizations.
- Doctors and nurses should Endeavour to educate women on breast and cervical cancer \ screening during regular physician office visit for other health issues.
- Nongovernmental and other charitable organizations can also make significant contribution to breast / cervical cancer screening awareness through sponsoring health talks, symposia and workshops target at relevant segments of the population.
- Women can be taught the techniques of monthly breast self examination, nurses, midwives and other healthcare providers can be trained to augment physicians in the performance of CBE, Pap smear, visual inspection and HPV testing.

**Suggestion for further studies.**

This study opened up avenues to several areas that could be usefully examined in womenôs health. It has also proved useful empirical information about research in breast and cervical cancers screening. Replicability is one of the demands of scientific empiricism and such replication could provide empirical support to the findings of this study. The suggested topics include;

- Knowledge and practice of breast and cervical cancer screening among women in the rural communities in Akwa Ibom State.
- Knowledge and practice of breast and cervical cancer screening among women in Uyo one year after this study (to determine whether their knowledge and practice of the screening tests learnt have improved or not).
- Knowledge and practice of breast and cervical cancer screening among women in all Local Government Areas in Akwa Ibom State.
- Knowledge, attitude and practice of breast and cervical cancer screening among women in Uyo.

Health care providers are usually expected to be better informed about any health programme so that they can adequately provide care for others. There is therefore the need to carry out a study on;

- Knowledge and practice of breast and cervical cancer screening among female health workers in Akwa Ibom State.
- A study to determine the factors influencing the knowledge and practice of breast and cervical cancer screening among women in Uyo.

## Conclusion

The results of this study have demonstrated that women in Uyo municipality demonstrated fair knowledge and practice of breast cancer screening and and poor knowledge and practice of cervical cancer screening. That this can be attributed to non existence of screening programmes and establishment of screening centres in the State before now. These results therefore suggested that a higher level of knowledge and practice of cancer screening may be achieved through enhancement of breast and cervical cancers awareness among women of Uyo municipality.

## Summary of the Study

This study explored the knowledge and practice of breast/ cervical cancer screening among women in uyo municipality. The specific objectives were to;

- Determine the knowledge of women and the practice of breast cancer screening
- Determine the knowledge of women and the practice of cervical cancer screening.
- Ascertain the relationship in womenôs age and level of education and the practice of breast cancer screening.
- Ascertain the relationship in womenós age and level of education and the practice of cervical cancer screening.

Relevant literature was reviewed based on the specific objectives and the health belief model and tripartite theory of knowledge were applied to the study. Sample of 420 women were drawn from the population of 5,860 in Uyo municipality using systematic and simple random sampling techniques. The instrument used for data collection was a researcher constructed questionnaire with a reliability coefficient (r) of 0.89 which was considered adequate. This was used to collect data on the spot with a return rate of 100%. Data derived were analyzed using

International Business Machines (IBM), statistical package for social sciences (SPSS) version 20. 0.

Major findings from the study showed that the women had fair knowledge of breast cancer screening and moderately practiced them as well as low knowledge and practice of cervical cancer screening across the age groups and educational levels. There was no significant association between knowledge and practice of breast cancer screening except for knowledge of eligible age to screen and practice. There was no significant association between knowledge and practice of cervical cancer screening except for eligible women and age to commence screening. There was significant relationship between womenôs age, their level of education and the practice of breast cancer screening whereas there was no significant relationship in womenôs age educational level and practice of cervical cancer screening except for age 18 - 28years which recorded significant relationship in level of education and practice of cervical screening. The findings indicate lack of adequate exposure of the women to facts about breast and cervical cancer screening and non implementation of cancer screening programmes before now in the State.

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## APPENDIX 1

## QUESTIONNAIRE ON

## KNOWLEDGE AND PRACTICE OF SCREENING TESTS FOR BREAST AND CERVICAL CANCERS AMONG WOMEN IN UYO, AKWA IBOM STATE

**SECTION A:** Demographic Characteristic

1. Age: Age Last birthday: [ ]

2. Marital Status: Single [ ]married [ ] Divorced [ ]

3. Educational level: Never attended [ ] Primary Education [ ]

Secondary education [ ] Tertiary Education [ ]

4. Religion: Christianity [ ] Islamic [ ] Traditional [ ]

**SECTION B:** Knowledge of women on breast cancer screening

5. Which part of the body does breast cancer affect?

Neck of the womb [ ] chest [ ] breast [ ] no idea [ ]

6. Which of the following conditions can be detected by the following screening tests?

Choose one from each group

- Breast self examination: Pregnant breast [ ] Breast cancer [ ] No idea [ ]
- Clinical breast examination: Cervical cancer [ ] breast cancer [ ] No idea [ ]
- Mammogram: Breast cancer [ ] Ovarian cancer [ ] No idea [ ]

7. Who should be screened for breast cancer?

-Healthy women from 18 years and above [ ] Only elderly women [ ]

-Commercial sex workers [ ]

-Women who have symptoms of breast cancer [ ]

8. Where can women go to do these tests

| Option | Home | Clinical/Hospital | No idea |
|---|---|---|---|
| - Breast self examination | | | |
| - clinical breast examination | | | |
| - Mammogram | | | |

9.Who should do the following tests for breast screening?

| Option | My self | Nurse/ doctor | Radiographer | Lab scientist | No idea |
|---|---|---|---|---|---|
| -Breast self examination | | | | | |
| - clinical breast examination | | | | | |
| Mammogram | | | | | |

10. How often are these tests done? Please select any one for each test.

| Option | Monthly | Every 1-2years | Every 1-3years | Every 5 year | No idea |
|---|---|---|---|---|---|
| - Breast self examination | | | | | |
| - Mammogram | | | | | |
| Clinical Exam. | | | | | |

11. Which of these signs are looked out for in breast cancer screening

Lump [ ] Abdominal pains [ ] discharge from nipple [ ]

Readiness [ ] Change in size [ ] None of the above [ ],

**SECTION C: Knowledge of Women on cervical cancer screening.**

12. Which part of the body does cervical cancer screening affect?

Abdomen [ ] breast [ ] vagina [ ] Cervix [ ] No Idea [ ]

13. Which of the following tests are appropriate for cervical cancer screening? Tick as many as you know; Mammogram Yes [ ] No [ ] ,Visual inspection Yes [ ] No[ ]

Clinical breast examination Yes [ ] No [ ]

Widal test Yes [ ] No [ ]

Pap smear Yes [ ] No [ ]

Serology test Yes [ ] No [ ]

Human paillomavirus test Yes [ ] No [ ]

14. Which of these groups of women should be screened for cervical cancer:

- All women, three years after they begin having sex [ ]
- Women who previously received treatment for cervical cancer [ ]
- Women who are commercial sex workers [ ]
- Post menopausal women [ ]
-Women who have symptoms of cervical cancer [ ]

15. What is the appropriate age to commerce cervical cancer screening?

15 ï 21 year [ ] 22 ï 30 years [ ] 31 ï 40 years [ ]

41 ï 50 years [ ] 51 ï 60 years [ ] 61 ï 70 years [ ]

16. Where can women go for these tests?

| Option | Home | Hospital/clinic | No idea |
|---|---|---|---|
| - visual inspection | | | |
| - pap smear | | | |
| -Human papillomavirus test | | | |

17. Which of these signs are looked out for during cervical cancer screening?

Tick those that are appropriate.

| | | | |
|---|---|---|---|
| -Vomiting | [ ] | Swelling | [ ] |
| -Bleeding | [ ] | Redness | [ ] |
| -Diarrhea | [ ] | None of the above | [ ] |
| -Abnormal cells | [ ] | All of the above | [ ] |

18. How often should a woman be screened for cervical cancer?

Once in her life time [ ] Once in 3 years [ ] Do not know [ ]

**SECTION D: Practice of breast cancer screening**

19. Have you ever been screened for breast cancer? Yes [ ] No [ ]

20. If Yes when was the last time you screened?

Within the past 3 years [ ] More than 3 years ago [ ]

21. If Yes which of the following tests have you done? Breast self examination [ ]

Mammogram [ ] Clinical breast examination [ ]

22. If Yes how many times have you been screened: Once [ ] More than once [ ]

**SECTION E: Practice of cervical cancer screening**

23. Have you ever been screened for cervical cancer? Yes [ ] No [ ]

24. If yes how many times have you been screened? Once [ ] More than [ ]

25. If Yes when last were you screened?

Within the past 3 years [ ] More than 3 years ago [ ]

26. If Yes which of these tests have you done? Visual inspection [ ]

Pap smear [ ] Human papillomavirus [ ]

**APPENDIX 11**

**MBUME KABANGA**

**IFIOK MME ADUNAM USE IDEM NNO UDONGO EKA NSA EBA MME ITONG**

**ITIE NNA AYEN KE OTU IBAN KE UYO, AKWA IBOM**

Item: Mbok nam tiktuai (✓) ke mme akebe enoho me, iko se ikem mme mbume akeneke mi.

AKPA IKPEHE: Sse Ubanga fien

1. Isua emana: Isua emana mfo ke akpara usoro usen emana ☐

2. Ndo: Ndoho ☐ Mme do ☐ Amasuana ☐

3. Nwed: Nwed itioket ☐ Duopeba ☐ Ntaifiok ☐

4. Ukpono Abasi: Adede ☐ Mme tuak ibout isong ☐ Ake idung ☐

   Udiana ikpehe: ifiok use eba

5. Ake idem ke esese eno ekansa eba esit

   Idip ☐ Eba ☐ Aba edem ☐

6. Ake ke otu use idem emi ke ekpese eno ekansa eba.

   * Use idip me emeyomo ☐ *Usio ndise eba ☐
   * Udomo iyip ☐ *Utuk eba nse eke ufok ibok ☐
   * Unuak eba ikpong ☐ * Ndionoke ☐

7. Anie ke ekpese idem eno udongo ami

   * Iban isua efuteta ka iso ☐
   * Nkaniban ikpong ☐
   * Mme akpara ☐
   * Iban se ikop ntungo ubiak ekansa eba ☐

8. Ke uke ke ekepe ka ekenam use idem emi

| iko | Ufok | Ufok ibok | Ndionke |
|---|---|---|---|
| * Use eba ikpong<br>* Unuak eba<br>* Usio ndise | | | |

9 Anie ekpenam mme use eba emi?

| iko | Ami | Nurse /Doctor | Ndionoke |
|---|---|---|---|
| * Use eba ikpong<br>* Unuak eba<br>* Usio ndise | | | |

10. Akan ifan ke ekpese eba

| iko | Kwa ofong | Isua 1 -2 | Isua 1-3 | Isua 5 | Ndionoke |
|---|---|---|---|---|---|
| * Use eba ikpong<br>* Unuak eba<br>* Usio ndise | | | | | |

11. Ese eyem so ke mme use idem emi

* Nkwa eba ☐ Ubiak idip ☐ Imin ☐
* Nyok ☐ Udad ☐ Ndionoke ☐

IKPEHE ITA: Ifiok kebanga use idem iton itie nna ayen

12. Nke idem ke ese nam use idem emi

Idip ☐ Eba ☐ Iton itie nna ☐ ndionoke ☐

13. Ake ke otu emi ado use idem se ekpenam?

* Usio ndise ih ☐ iyo ☐
* Usese ih ☐ iyo ☐
* Unuak ih ☐ iyo ☐
* Use iyip ih ☐ iyo ☐
* Usio udud ih ☐ iyo ☐
* Udomo nkene unam ih ☐ iyo ☐

14. Ake ke otu iban emi ekpenam use idem emi?

* Mme akpara ☐
* Uked iban isua 3 ema tungo ina ☐
* Iban se eka nsa akenam ☐
* Nkan Iban ☐
* Iban se itungo ikop ubiak ☐

15. Isua ifan ke ekpetungo enam?

Isua 15-21 ☐ Isua 22 ï 30 ☐ Isua 31 ï 40 ☐

Isua 41 ï 50 ☐ Isua 51 ï 60 ☐ Isua 61 ï 70 ☐

16. Ekpe nam mmo use idem emi?

Ufok ☐ Ufok Ibok ☐ Ndionoke ☐

17. Ese eyem so ke use idem emi?

Akikoi ☐ Uyok ☐ Iyip ☐

Udad ☐ Ndioi nson ☐ Ndionoke ☐

18. Akan ifan ke ekpese idem emi? Akan kiet keyo uwem ☐

Akan kiet kisua 3 ☐ Akan keit kisua 1 ☐ Ndionoke ☐

**IKPEHE INANG: Edinam use eba**

19. Amenam use eba akpa Ih ☐ Iyo ☐

20. Akpedo Ih, akanam akpatre idahake?

    * Ke ufan isua ita ☐ * Akan isua 3 ☐

21. Akpedo Ih, ake ke akanam

    * Use eba ikpong ☐ * Usio ndise ☐ * Unuak ☐

22. Akpedo Ih, akan ifan ke nam? Kiet ☐ Akan kiet ☐

**IKPEHE ITION: Edinam use itong itie nna**

23. Amenam use idem emi akpa? Ih ☐ Iyo ☐

24. Akpedo Ih, akan ifan? Kiet ☐ abuyo kiet ☐

25. Akpedo Ih, akenam akpatre idaha ake?

    Ke ufan isua 3 ☐ Abuyo isua 3 ☐

26. Akpedo Ih, ake ke akenam?

    Usese ☐ Usio udud ☐ Udomo ndioi nkanhe unam ☐ Ndionoke ☐

Appendix 111

**Calculation of sample size**

Using power analysis for a known population

Formula: N/1 +N/ population

Where:

$$N = \frac{Z^2(P)(q)}{d^2}$$

where N = Desired sample size

Zd = Confidence coefficient of alpha symbol (1.96 for 96% confidence level)

P = Prevalence or population proportion default value = 0.5

q = 1 ï P

d = Precision desired (P value) Tolerable error of 5% (0.05)

According to Kalla, (2009) and Nwadiaro, (2009) if P and q are not available from previous studies, 50% can be used for P and q in the estimation of sample size i.e. P = 50% (0.50)

q = 1 ï P (1 ï 0.050)

$$\therefore N = \frac{Z^2 (P)(q)}{d^2}$$

$$= \frac{(1.96)^2 (0.50)(1 - 0.05)}{(0.50)^2}$$

$$= \frac{3.8216 \times 0.50 \times 0.5}{0.0025}$$

$$= \frac{3.8216 \times 0.25}{0.0025}$$

$$= \frac{0.9554}{0.0025}$$

N = 382.16

= 382.16/1 + 384.16/5,860

= 382.16 + 0.06

= 382.22

∴ Sample = 382

10% attrition rate in case of missing questionnaire or incomplete responses is added thus; Formula : $N^1 = N + q$

Where N = sample size

$N^1$ = number of subject to be recruited to ensure that the final sample size is achieved.

q = the proportion of attrition and is generally 10%

N = 382 + 10%

10% of 382 = 38

= 382+38

N = 420

## APPENDIX IV

Reliability Using PPMCC

$$r = \frac{n\Sigma xy - \Sigma x\Sigma y}{\sqrt{[n\Sigma x^2 - (\Sigma x)^2][n\Sigma y^2 - (\Sigma r)^2]}}$$

| S/N | X | Y | $X^2$ | $Y^2$ | XY |
|---|---|---|---|---|---|
| 1 | 36 | 40 | 1296 | 1600 | 1400 |
| 2 | 22 | 14 | 484 | 196 | 308 |
| 3 | 24 | 20 | 576 | 400 | 480 |
| 4 | 12 | 10 | 144 | 100 | 120 |
| 5 | 24 | 24 | 576 | 576 | 576 |
| 6 | 34 | 38 | 1156 | 1444 | 1292 |
| 7 | 32 | 26 | 1024 | 676 | 832 |
| 8 | 28 | 38 | 784 | 1444 | 1064 |
| 9 | 26 | 24 | 676 | 576 | 624 |
| 10 | 28 | 22 | 784 | 484 | 616 |
| 11 | 16 | 10 | 256 | 100 | 160 |
| 12 | 34 | 26 | 1156 | 676 | 884 |
| 13 | 32 | 36 | 1024 | 1296 | 1152 |
| 14 | 24 | 26 | 576 | 676 | 624 |
| 15 | 32 | 32 | 1024 | 1024 | 1024 |
| 16 | 20 | 30 | 400 | 900 | 600 |
| 17 | 32 | 32 | 1024 | 1024 | 1024 |
| 18 | 18 | 12 | 324 | 144 | 216 |
| 19 | 14 | 14 | 196 | 196 | 196 |
| 20 | 28 | 16 | 784 | 256 | 448 |
| 21 | 14 | 14 | 196 | 196 | 196 |
| 22 | 28 | 32 | 984 | 1024 | 896 |
| 23 | 20 | 14 | 400 | 196 | 280 |
| 24 | 24 | 22 | 576 | 484 | 528 |
| 25 | 22 | 18 | 484 | 324 | 396 |
| 26 | 20 | 26 | 400 | 676 | 520 |
| 27 | 24 | 20 | 576 | 400 | 480 |
| 28 | 22 | 26 | 484 | 676 | 572 |
| 29 | 22 | 22 | 484 | 484 | 484 |
| 30 | 20 | 24 | 400 | 576 | 480 |
| 31 | 22 | 22 | 484 | 484 | 484 |
| 32 | 28 | 26 | 784 | 676 | 728 |
| 33 | 24 | 22 | 576 | 484 | 528 |
| 34 | 32 | 26 | 1024 | 676 | 832 |

| | | | | | |
|---|---|---|---|---|---|
| 35 | 40 | 40 | 1600 | 1600 | 1600 |
| 36 | 20 | 26 | 400 | 676 | 520 |
| 37 | 24 | 20 | 576 | 400 | 480 |
| 38 | 20 | 26 | 400 | 676 | 520 |
| 39 | 22 | 22 | 484 | 484 | 484 |
| 40 | 38 | 40 | 1444 | 1600 | 1520 |
| 41 | 20 | 22 | 400 | 484 | 440 |
| 42 | 36 | 40 | 1296 | 1600 | 1440 |

n = 42. $\Sigma x$ = 1058, $\Sigma y$ = 1040

$\Sigma x^2$ = 29516, $\Sigma y^2$ = 28664, $\Sigma xy$ = 28088

$$r = \frac{n\Sigma xy - \Sigma x\Sigma y}{\sqrt{[n\Sigma x^2 - (\Sigma x)^2][n\Sigma y^2 - (\Sigma r)^2]}}$$

$$r = \frac{42(28088) - (1058)(1040)}{\sqrt{[42(28516) - (1058)^2][42(28664) - (1040)^2]}}$$

$$r = \frac{1179696 - 1100320}{\sqrt{1197672 - 1119364)(1203888 - 1081600)}}$$

$$r = \frac{79367}{\sqrt{(78308)(122288)}}$$

$$r = \frac{79367}{\sqrt{(9576128704)}}$$

$$r = \frac{79376}{97857}$$

r = 0.81.

Apply split half

$$r_w = \frac{nr}{1 + r}, \quad \text{Where } r = 0.81, n = 2$$

$$r_w = \frac{2 \times 0.81}{1 + 0.81} = \frac{1.62}{1.81}$$

$r_w$ = 0.89