

**KNOWLEDGE AND PRACTICE OF BREAST SELF
EXAMINATION AMONG FEMALE NURSES AT THE ADEOYO
MATERNITY AND RING ROAD SPECIALIST HOSPITALS
IBADAN, NIGERIA**

BY

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DEDICATION

This research is dedicated to the Almighty God, the giver of life, strength and ability and to sisters both alive and dead due to breast cancer.

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ABSTRACT

Breast Cancer (BC) is the commonest cause of cancer-related death among women and its incidence is on the increase in Nigeria. The level of practice of Breast Self Examination (BSE), a cheap, easy-to-learn and effective screening measure for detecting BC in its early stage, is low among Nigerian women. Nurses have pivotal roles to play in educating women on how to perform BSE, yet their knowledge and level of practice related to the procedure have not been fully investigated. This study was designed to assess the knowledge and practice of BSE among female nurses in Adeoyo Maternity and Ring Road Specialist Hospitals in Ibadan.

All the 380 female nurses in the two health facilities were enrolled in the cross-sectional study. The instruments for data collection were a validated questionnaire with a 19-point BC knowledge scale, a 10-point BSE knowledge scale and a 9-point adapted American Cancer Society's BSE skill check-list. The questionnaire was used to assess respondents' knowledge about BC and BSE while the checklist was used to assess their skills related to BSE using a breast model. Data were analysed using descriptive statistics, Chi-square test and ANOVA at 5% level of significance.

The mean age of the respondents was 41.9 ± 8.6 years. Majority (88.6%) were married with a median parity of 3.00 (0-7 children). The highest level of education attained by respondents were basic Nursing/Midwifery (89.4%), Bachelors degree in Nursing (8.2%), Bachelors degree in Health Education (1.6%) and Bachelors degree in Psychology (0.8%). Respondents' overall mean knowledge scores in respect of BC and BSE were 11.7 ± 2.3 and 6.4 ± 1.4 respectively. Mean knowledge scores on BC by educational qualifications were B.Sc Nursing (12.2 ± 1.4), B.Sc Psychology (12.0 ± 1.7); Basic Nursing/Midwifery (11.7 ± 2.4) and B.Sc Health Education (11.5 ± 1.1); with no significant difference. The mean knowledge score about BSE for Basic Nursing/Midwifery (6.5 ± 1.5); B.Sc Nursing (6.4 ± 1.3); B.Sc Psychology (6.0 ± 2.0) and B.Sc Health Education (5.5 ± 1.2) were not significantly different. The risk factors associated with BC included running night shift duties (18.4%), early menarche with late onset of menopause

(26.3%) and nulliparity (15.0%). Mean score on BSE skill was 5.8 ± 1.6 . Most respondents (95.9%) had ever performed BSE out of which only 45.5% practiced BSE in the month preceding the survey. Only 4.1% of the respondents could correctly demonstrate BSE. Many respondents (67.4%) were aware that BSE should be done on a monthly basis. The reasons advanced for not performing BSE by some respondents included being too busy (1.6%), doubt about efficacy of BSE in early detection of BC (1.6%) and lack of adequate skills (0.9%) about BSE. A large proportion (88.0%) perceived themselves vulnerable to BC and 99.2% had the intention of performing BSE.

The knowledge of breast cancer was average and the level of practice of breast self examination was low. These may limit the ability to educate their clients on breast cancer. In-service training is needed to upgrade their knowledge and skill related to breast self examination.

Key words: Female nurses, Breast cancer, Breast Self Examination , Knowledge and Practice.

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CERTIFICATION

I certify that the study was carried out by Suzie Jacob ADAMU in the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan, Ibadan, Nigeria.



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LIST OF ABBREVIATIONS

ACNO	Assistant Chief Nursing Officer
ACS	American Cancer Society
BBC	British Broadcasting Corporation
BC	Breast Cancer
BRCA 1	Breast Cancer Gene One
BRCA2	Breast Cancer Gene Two
BRECAN	Breast Cancer Association of Nigeria
BSE	Breast Self Examination
CBE	Clinical Breast Examination
CNO	Chief Nursing Officer
COPD	Children out Patient Department
ENT	Ear Nose & Throat
ERT	Estrogen Replacement Therapy
FMOH	Federal Ministry of Health
HER	Hormones Estrogen Receptors
HMB	Health Belief Model
HOD	Head of Department
HRT	Hormone Replacement Therapy
LSS	Life Saving Scheme
LUTH	Lagos State Teaching Hospital
MOP	Medical out Patient
MOPD	Medical out patient Department
NO 1&2	Nursing Officer one / Nursing Officer two
NPC	National Population Commission
OAUTH	Obafemi Awolowo University Teaching Hospital
PHT	Post menopausal Hormone Therapy
PNO	Principal Nursing Officer
RN/M	Registered Nurse/Midwife
SCBU	Special Care Baby Unit
SHBG	Sex Hormone Binding Globulin
SEER	Surveillance Epidemiology and End Result
SNO	Senior Nursing Officer
SOP	Surgical out Patient
UCH	University College Hospital
UNICEF	United Nations International Children Emergency Funds
WHO	World Health Organization

OPERATIONAL DEFINITIONS

For the purpose of this study, the following words were used:

Advocacy: A verbal Solicitation for the support encouragement, backing, sponsorship by individuals, professionals and government/non governmental agencies for prevention of BC.

Cancer: Growth of the malignant abnormal cells which can affect any part of the body: Malignant because such cells acquire independent self-regulation, removing themselves from the normal body regulatory mechanism thereby causing serious harm to the body (American Cancer Society, 2007).

Cancer of the breast: Malignant growth of the breast tissue. It can begin as small painless fixed lump most frequently located in the upper outer quadrant of the breast.

Knowledge: It is what female nurses know about the causes, signs and symptoms (American Cancer Society, 2002), preventive practice of BSE for BC including when and how to perform BSE.

Practice: Any intervention undertaken by some one aimed at preventing or identifying a disease at asymptomatic stage. With regards to BC, there are three common preventive

Breast self examination: It is an autonomous preventive health behaviour that is carried out on a monthly basis. It involves inspection, feeling/palpation of the breast tissue in a particular movements looking for any change from normal (Mercy Cedar Rapids, 2004).

Pre menopausal women: These are women in the process or condition leading to menopause or when they cease to menstruate. Pre-menopausal events usually occur in women of 40-50 years. This phase precede menopause and it is usually characterized by: irregular menses, erratic menstrual flow, episodic hot flushes, emotional and mood changes, changes in libido. In one quarter of women, it occurs before age 45. In about a quarter it occurs at about 45 years, while in about half it occurs after 50 years of age (Adebamowo and Ajayi, 2000).

Mammography: Breast-screening procedure an X-ray examination of the breast, used for the early detection of developing tumors, especially cancerous ones

Nurses: A nurse is a highly trained and skilled professional who cares for the sick and infirm. A nurse helps to educate patients in issues of healthy living and wellness as well as any current or chronic disease process and treatment. A nurse performs treatments and procedures as prescribed by physicians, physician assistants and nurse practitioners (Microsoft Encarta Premium, 2006).

Palpation: medical examination using fingers: A method of clinical examination using gentle pressure of the fingers to detect growths, changes in the size of underlying organs, and unusual tissue reactions to pressure (Mercy Cedar Rapids, 2004)

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Breast Cancer (BC) occur when the process that controls normal cell growth in the body breast breaks down, enabling a single abnormal cell to multiply at a rapid rate (American Cancer Society, 2002; 2006). Cancers of all forms are responsible for about 12 percent of deaths throughout the world (Park and Park, 2007; National Cancer Institute, 2008). BC is the second most common type of cancer after lung cancer, the fifth most common cause of death and it is the most common malignant neoplasm among women globally (WHO, 2003; 2006; Imam, 2008; American Cancer Society, 2007). BC constitutes a major public health issue globally with over 1 million new cases diagnosed annually, resulting in over 400,000 annual deaths and about 4.4 million women living with the disease (National Cancer Institute, 2008; WHO, 2003; Vorobiof and Sitas, 2001; Peto, Boreham, Clarke, Davies and Beral, 2000). It is the commonest specific malignancy affecting women and the most common cause of mortality in women worldwide (WHO, 1998; Parkin, Bray, Farley and Pisani, 2005). The majority of patients that suffer from BC in Africa are young and pre-menopausal women, usually diagnosed in hospital at advanced stages (Adesunkanmi, Lawal, Adelusola, Durosimi, 2006; Balogun and Owoaje, 2004; Okobia and Osime, 2001).

Breast and Cervical cancers are the two major female malignancies reported worldwide and especially in the developing world (Park and Park, 2002; National Institutes of Health, 2005). Studies have shown increased incidence in African countries where low rates have previously been reported (Parkin et al, 2005; Adebamowo and Ajayi, 2000; American Cancer Society, 2006; Okobia, Bunker, Okonofua and Osimie 2006). An estimated total incidence of 1.45 million new cancer cases would be expected by the year 2010 (Parkin et al, 2005). The peak age incidence of BC in Nigeria is reported to be between 45-50 years (Ali Abu-Salem and

Abdullah, 2007; Anyanwu, 2000), in contrast to Europe and America where it was reported to be 65-75 years (WHO, 2003; National Cancer Institute, 2008). Some cases of BC have been reported below 30 years in Nigeria (Banjo, 2004; Okobia and Osime 2001). For example, recently a ten year old girl was diagnosed with invasive BC in the US (Anon, 2009) and this appears to be the worst scenario so far recorded. Arising from the above circumstance, it is important to educate the public on early detection of BC screening because it is easier to treat BC if it is diagnosed early (Ali and Khali, 1996). There is evidence that screening early for BC has favorable effect on mortality from BC (American Cancer Society, 2002; 2006; WHO, 2005; Adebamowo and Ajayi 2000).

Breast self examination (BSE) is a process of examining one's own breast using a specific palpation technique to detect any lump in the breast tissue (American Cancer Society 2007; Murray, 1998; Harvey, Miller, Agboola, Oritogun, Musa, Oyebadejo and Ayoade, 2009). BSE involves a careful step-by-step approach to looking at and feeling one's breasts. Other women are more comfortable simply by looking and feeling their breasts in a less systematic approach, such as while taking a shower or getting dressed or doing an occasional thorough examination (American Cancer Society, 2008; Alssaf, 2004). According to Anderson, Ramsey, Bengoa, Braun and fitch (2006) and Anon (2009), there is evidence that show association between regular BSE and more favorable clinical and pathological stages of BC. Approximately 70% of all breast masses are self detected. Yet many women fail to carry out this important, affordable and very easy to perform procedure (Oluwatosin and Oladepo, 2006).

Although mammography remains the best diagnostic tool in the detection of BC, it is not routinely performed in Nigeria because of cost, high technology equipment and expertise required (Balogun and Owoaje, 2004; Oluwatosin and Oladepo, 2006). Mammograms miss most breast lump in the younger age group (Yu and Wu, 2003; Bekker, Morrison and Marteau, 1999) this is likely to happen in Nigeria, where cases below 30 years have been reported (Anyanwu, 2000; Banjo, 2004; Okobia and

Osime, 2001). Monthly BSE has been reported to be effective in detecting the early symptoms of BC (Jacob, Penn, and Brown, 1989; Balogun and Owoaje, 2004) which in turn, greatly reduces mortality from BC (Hee Soon, Euisook and Wook, 2001). BC is easier to treat if detected early, for this reason; some experts recommend that women from age 20 perform a monthly BSE to look for new lumps and other changes (American Cancer Society, 2007; Maha and Abdelhadi, 2000).

Without being specific to the type, cancer has been acknowledged globally as one of the major killer disease (Boffetta, Hashibe, La-Vecchia, Zatonski and Rehm, 2006; SEER Cancer Statistic Review, 2008). It is no respecter of persons or the type of economy populations operate. Thus, in the developing countries, especially where the health facilities are inadequate and or lacking, only the enlightened and financially capable travel abroad for professional medical attention in the form of diagnoses and treatment. Thus it may not be out of context to buttress this circumstance high-lighted above by quoting the Nigeria's' first lady, Hajiya Turai Yar'adua, on the occasion of the launching of the 10 billion naira International Cancer Centre Abuja, on 18th July 2009, when she said that,

"Countless Nigerians, especially the less privileged who can not afford the lowest form of medical attention, continue to suffer in pain, while some have passed away. If cancer takes away our very best, the young, the old, the well-to-do and the not so well-off who then is spared?" (Anon, 2009).

In spite of the increasing risk of BC, the early detection and diagnosis rates of BC are considerably lower among Nigerian women than among women in Western countries (Adebamowo and Ajayi, 2000; Boyle, 2009; Aderounmu, Egbewale, Ojofeitimi, Fadiora, Oguntola.... and Akanbi, 2006). In the mid 1970s, Henry Penny Packer, an American psychologist was disturbed to hear that women were not detecting cancerous lumps in their breasts until the growths were so large and were hard to treat. He believed there had to be a way to help women find lumps sooner, when they are the size of a pea. According to him,

"If we can teach the fingers to read Braille, then we can surely teach them to find breast lumps smaller than golf balls. 'Why not detect lumps as small as three millimeters? It seemed possible'" (Murray, 1998).

Other screening methods like Mammography and Breast Clinical Examination are not a routine part of regular medical examination in Nigeria. Unfortunately, this is used for patients at higher risk of BC (Oluwatosin and Oladebo, 2006; Adenike, Akhigbe and Omuemu, 2009). Therefore, many women miss early detection and treatment opportunities owing to lack of information, knowledge and awareness of BC, as well as to lack of cancer screening practices and so most cases are diagnosed in advanced stages.

Healthcare workers are a direct source of medical information to the public and patients. Due to their frequent contact with patients and their families, nurses particularly are often looked upon to provide information and support, regarding medical problems including cancer. This extends not just to patients but also to their own circle of family and friends. It is essential then, that the information that they convey is accurate and assists in building further awareness (Adenike et al, 2009; Seah and Tan, 2002). As detection of BC in its early stages is amenable to almost complete cure, it is thus important to educate the public on the need for early detection. Being on the frontline of patient care, nurses are in a unique position to educate and motivate as they have a supportive role in educating and motivating patients on BC screening in the primary healthcare setting (Kwok, Cant & Sullivan, 2005). Due to their key role in patient education, it is important to explore these nurses' knowledge and practice on BC screening which may indirectly influence their patients' understanding and practice (Chong, Krishnan, Hon & Swah, 2002; Cavdar, Akyolku, Ozbas, Oztekin, Ayoglu and Akyuz, 2007).

Studies have shown that women who have learned about BSE have positive attitudes toward BC and practice BSE more frequently, and that nurses who teach their clients about methods of early detection of BC and BSE are more knowledgeable about screening methods and BSE techniques than those who do not (Alssaf, 2004)

1.2 Statement of the Research Problem

In the US, about 203,500 new cases of BC are diagnosed and about 40,000 women die each year from BC and one out of every eight American women who lived to age 85 years will suffer from BC (Redmond, 2005; American Cancer Society, 2006; Park and Park, 2007). In the UK, one out of twelve women will develop BC during her life time, and women who have the first degree relative with BC are 2-3 times more likely to develop the disease. In Nigeria, incidence rate has increased from 13.8–15.3 per 100,000 in the 1980s, to 33.6 per 100,000 in 1992 and 116 per 100,000 in 2001 (Adebamowo and Ajayi, 2001; BRECAN, 2008). These increases in incidence are due to changes in the demography, socio-economic parameters, epidemiologic risk factors, better reporting and awareness of the disease (BRECAN, 2008). While mortality rates are declining in the developed world (Americas, Australia and Western Europe) as a result of early diagnosis, screening, and improved cancer treatment programmes, the converse is true in the developing world as well as in Eastern and Central Europe where the incidence is on the increase (Parkin et al, 2005; Adesunkanmi et al, 2006).

In a study of health belief model and BSE, by Kwok et al, (2005) and Grunfeld, Ramirez, Hunter and Richards (2002), one in 12 women in the UK will develop BC during her life time. Richards, Westcombe, Love, Littlejones & Porter (1999), women who have a first degree relative with BC are 2-3 times more likely to develop the disease.

In Nigeria, late presentations of BC cases have also been consistent for three decades, because there is no established national screening program for BC in the country (Oluwatosin and Oladebo, 2006). Consequently, since there is no established national screening programme for BC, there is low propensity/tendency to be screened for early identification and prompt treatment of BC in the Nigerian women (Ihekweaba, 1992 and Oluwatosin and Oladebo, 2006). This poor health seeking behavior has been reported in several studies for BC and other diseases in Nigeria (Lawani, Ngu & Osunkoya, 1973; Adebamowo et al, 1999).

It is estimated that by the year 2015, the number of new cases of BC shall be 10 million (The American Cancer Control Program, 1995). There is a shift of attention now by several governments of the world from communicable to non communicable diseases with particular focus on cancers of the reproductive system in the females. BC has become the major concern of most Nigerian governor's wives, particular of note are those of the Zamfara, Imo and the first lady of the country (Imam, 2008).

Previous researches on BSE in Nigeria have revealed a paucity of data on the knowledge of BC, and practice of BSE among women (Okobia et al, 2006). Most of these studies have focused on young undergraduates (Adelusola, Fadarin, Adesunkami and Adesanmi, 1996), women in urban areas (Adebambowo and Ajayi, 1999; Anyanwu, 2000), women in the rural communities (Onyenwenyi, 2002) and the educated and traders (Balogun and Owoae 2004). Limited or no attention has been focused on female nurses who are known to be health educators of BSE in the tertiary, secondary and primary health institutions. If the propensity for women to perform BSE is low, then female nurse's behavior to it cannot be different.

The researcher observed that many studies have been carried out amongst women concerning their knowledge and practice of BSE. However the female nurses who have been deeply involved in teaching BSE to women, have not been adequately studied. Since nurses are a vulnerable group to BC (Al-Abadi, 2001) the findings of the study will encourage more female nurses to practice BSE as a way of preventing and or reducing the occurrence of the disease among this group.

1.3 Justification for the Study

This study is significant for three reasons. One, despite the severity of BC, health care provider's especially female nurses who are always looked upon as role models in health related issues do not pay adequate attention to the measures that prevent it (Amir, Makwaya, Aziz & Jessani, 1998). Their attitude and practice towards health issues might positively or negatively influence the decisions made by members of the communities being served.

Two, nurses particularly are often looked upon to provide information and support regarding medical problems, including cancer. This extends not just to patients but also to their own circle of family and friends. It is essential then, that the information that they convey is accurate and assists in building further awareness (Sear and Tan, 2007; Budden, 1998).

Three, for most women in the world, the diagnosis of BC is like a death sentence. Evidence abounds to show that early detection is the key to successful treatment. There is evidence also that women who correctly practice BSE monthly are more likely to detect a lump in the early stage of its development, and early diagnosis has been reported to influence early treatment and to yield a better survival rate (American Cancer Society, 2000; Mercy, 2004). Since nurses can have a major influence on the behavior of women, they need to be knowledgeable themselves, have the confidence to perform BSE and teach about BC risk (Ali Abu-Salem et al, 2007).

1.4 Objectives of the study

The broad objective of the study was to assess the knowledge, and practice of BSE among female nurses at the Adeoyo maternity and Ring road specialist hospitals in Ibadan Oyo State, Nigeria.

The specific objectives were to:

1. Assess the female nurses' knowledge about BC and BSE.
2. Document the female nurses' perception of vulnerability to BC.
3. Determine their practice and intention to practice BSE.
4. Ascertain the nurses' BSE skills.

1.5 Research Questions

1. What is the level of knowledge of female nurses about BC and BSE?
2. What is the nurses' perception of vulnerability to BC?
3. To what extent do nurses practice BSE and what is their intention to practice BSE?
4. What is the level of BSE skill among the female nurses?

1.6 Hypothesis

1. There is no significant difference between educational level of the respondents and their knowledge of BSE
2. There is no significant relationship between the respondents' knowledge of BC and their perception of vulnerability to BC
3. There is no significant relationship between the age of respondents and their BSE practice..
4. There is no significant relationship between the nurses' BSE skills and BSE practice.
5. There is no significant relationship between the respondents' perception of vulnerability to BC and their intentions to practice BSE.

CHAPTER TWO

LITERATURE REVIEW

2.1 Breast Cancer knowledge

2.1.1 Overview of the Structure of the Breast

In order to understand BC, it is helpful to have some basic knowledge about the normal structure or parts of the breasts, as shown in Figure 2.1 below.

A woman's breast is made up of glands that make breast milk (called lobules), ducts (small tubes that carry milk from the lobules to the nipple), fatty and connective tissue, blood vessels, and lymph vessels. Most BCs begin in the cells that line the ducts (ductile cancer), some begin in the lobules (lobular cancer), and a small number start in other tissues (Breastcancer.Org, 2006).

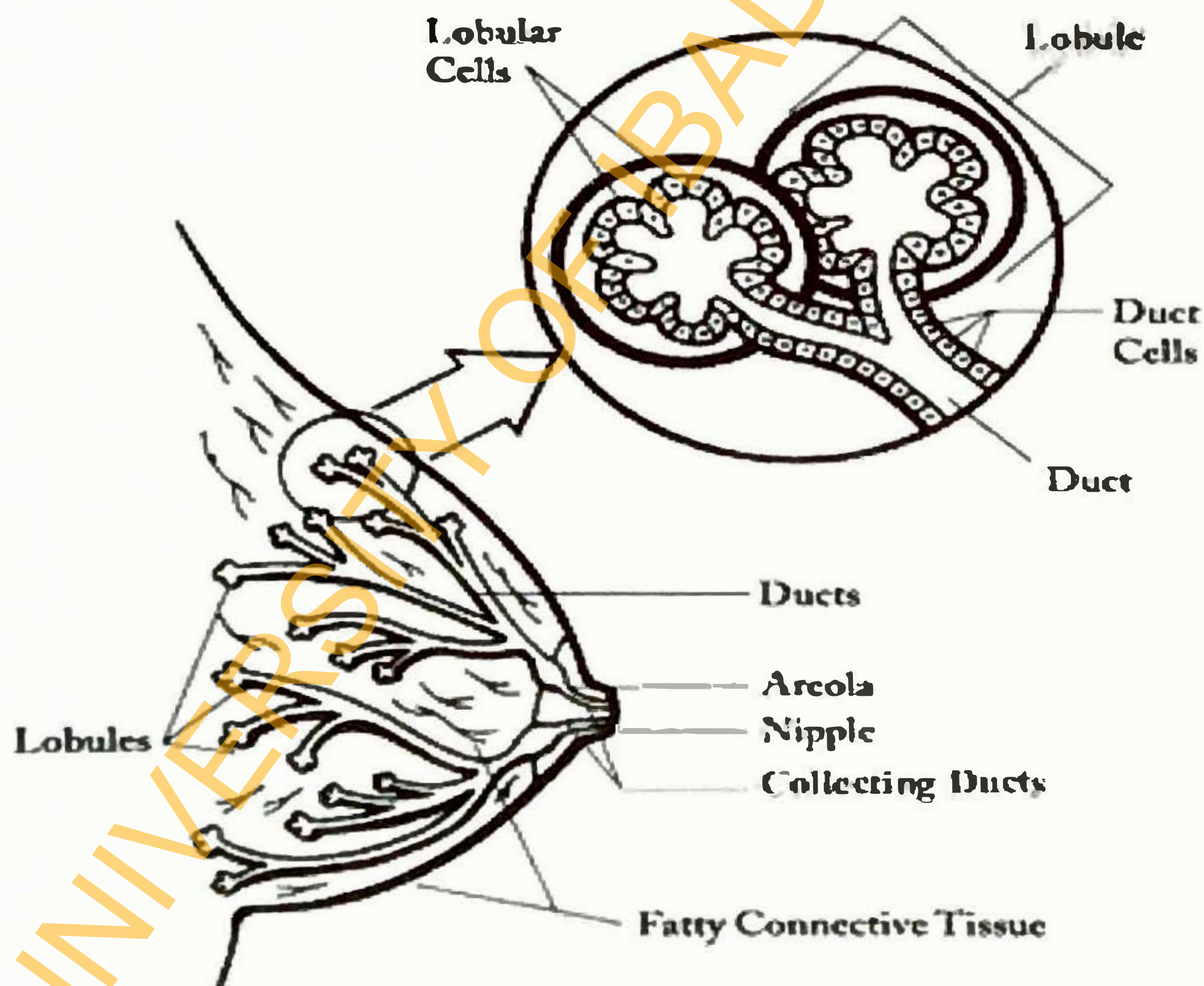


Figure 2.1 Structure of the breast

Source: Breastcancer.Org (2006)

2.1.2 The Lymph System

The lymph system is important because it is one of the ways in which BCs can spread. This system has the following:

- Lymph nodes, small bean-shaped collections of immune system cells (cells that are important in fighting infections) that are connected by lymphatic vessels.
- Lymphatic vessels, like small veins, except that they carry a clear fluid called lymph (instead of blood) away from the breast.

BC cells can enter lymphatic vessels and begin to grow in lymph nodes.

Most lymph vessels of the breast lead to lymph nodes under the arm. These are called axillary's nodes. If BC cells reach the underarm lymph nodes and continue to grow, they cause the nodes to swell. It is important to know whether cancer cells have spread to lymph nodes because if they have, there is a higher chance that the cells have also gotten into the bloodstream and spread to other places in the body. This could affect the treatment plan (Breast Cancer.Org, 2006).

2.1.3 Types of Breast Growth

Benign Breast Growth

Most breast lumps are benign. This means they are not cancerous. Benign breast tumors are abnormal growths, but they do not spread outside of the breast and they are not life threatening. But some benign breast lumps can increase a woman's risk of getting BC. Most lumps are caused by fibrocystic changes and fibrosis is the formation of scar-like tissue. These changes can cause breast swelling and pain. They often happen just before a period is about to begin. The breasts may feel lumpy, and sometimes there is a clear or slightly cloudy nipple discharge.

Malignant Breast Growth

BC is a malignant growth that starts in the cells of the breast (ACS, 2007). BC starts when the process that controls normal cell growth breakdown, enabling a single abnormal cell to multiply at a rapid rate (American Cancer Society, 2005). Every

person has cancer cells in the body. These cancer cells do not show up in the standard tests until they have multiplied to a few billion. When doctors tell cancer patients that there are no more cancer cells in their bodies after treatment, it just means the tests are unable to detect the cancer cells because they have not reached the detectable size. Cancer cells occur between 6 to more than 10 times in a person's lifetime (James, 2005).

The gene expression study revealed three significant differences:

1. BC in African women develops more likely from basal-like cells, rather than the inner milk secreting luminal cells which are the most common sources of BCs for US and European women. Tumors that arise from basal cells have a worse prognosis regardless of race.
2. BC in African women often lack estrogen receptors. These tumours do not depend on estrogen and thus will not respond to drugs like Tamoxifen, which are known to prevent estrogen from reaching the cancer cells.
3. Cancers in African women were slightly less likely to respond to the drug Herceptin (a monoclonal antibody which kills cells to produce a protein substance (HER-2) that enhances the effectiveness of chemotherapy), which was recently approved for metastatic BC (Polite and Olopade, 2005).

African-American women have worse survival rate and less localized disease than Caucasian women do, although the incidence of BC in African American women is lower, their mortality rate is higher than in Caucasian women (Polite and Olopade, 2005; National Cancer Institute 2005).

2.1.4 Causes/Etiology of BC

The cause of cancer is still unknown (American Cancer Society, 2000; National Cancer Institute, 2002; 2005) but some risk factors are linked to it. Different cancers have different risk factors. Some risk factors, such as smoking, drinking, and diet are linked to the disease. Others like a person's age, race, or family history which can not be changed are also linked. However, having a risk factor or even several doesn't mean that a person will get the disease. Some women who have one or more risk

factors never get BC. And most women who do get BC do not have any risk factors. Therefore, all women are at risk for BC (National cancer Institute, 2004; American Cancer Society, 2009).

2.1.5 BC Risk Factors

Several basic measures of risk may be used for describing a woman's chances for developing BC (American Cancer Society, 2005). Although many risk factors may increase the woman's chance of developing BC, it is not yet known exactly how some of these risk factors cause cells to become cancerous. The risk factors associated with the development of BC include the following:

Not having children or having them later in life

Women who have not had children, or who had their first child after age 30, have a slightly higher risk of BC. Being pregnant more than once and at an early age reduces BC risk. Pregnancy reduces a woman's total number of lifetime menstrual cycles, which may be the reason for this effect. More than 75% of cases of BC occur in women aged over 50 years, having few or no children and having a first full-term pregnancy at a late age (American Cancer Society, 2005; 2008).

Recent use of birth control pills

Studies have found that women who are using birth control pills have a slightly greater risk of BC than women who have never used them. Women who stopped using the pill more than 10 years ago do not seem to have any increased risk. It's a good idea to talk to one's doctor about the risks and benefits of birth control pills.

Postmenopausal hormone therapy (PHT)

Postmenopausal hormone therapy (also known as hormone replacement therapy or HRT), has been used for many years to help relieve symptoms of menopause and to help prevent thinning of the bones (osteoporosis). There are two main types of PHT. For women who still have a womb (uterus), doctors generally prescribe estrogen and progesterone (known as combined PHT). Estrogen alone can increase the risk of

cancer of the uterus, so progesterone is added to help prevent this. For women who no longer have a uterus (those who had undergone hysterectomy), estrogen alone can be prescribed. This is commonly known as estrogen replacement therapy (ERT) (ACS, 2005; Breslow, Sorkin, Frey and Kessler, 1997).

Hormones seem to play a role in many cases of BC, but just how this happens is not fully understood (ACS, 2009). For most women, the top risk factors for BC are hormonal, such as starting menstruation at a young age (before 12 years old) and going through menopause late in life (after age 50).

Not breast feeding

Some studies have shown that breast-feeding slightly lowers BC risk, especially if the breast-feeding lasts 1½ to 2 years. This could be because breast-feeding lowers a woman's total number of menstrual periods as well as pregnancy. Breast feeding conferred nearly a 60 percent lower risk of premenopausal breast cancer on women who had a family history of the disease (Kotz, 2009).

Alcohol

Use of alcohol is clearly linked to an increased risk of getting BC (Bagliotto, 2005). Women who have one drink a day have a very small increased risk. Those who have two to five drinks daily have about 1½ times the risk of women who drink no alcohol. The American Cancer Society (2005) suggests limiting the amount alcohol drink in a day by women.

Overweight/Obesity

Being overweight or obese is linked to a higher risk of BC especially for women after menopause and if the weight gain took place during adulthood. Also, the risk seems to be higher if the extra fat is in the waist area. But the link between weight and BC risk is complex, and studies of fat in the diet as it relates to BC risk have often given conflicting results. The American Cancer Society recommends that women maintain a healthy weight throughout their life and avoid gaining too much weight. Obesity is

also associated with significant hormonal changes such as decreased serum estradiol and sex hormone binding globulin (SHBG) levels, increased peripheral fat conversion of estrogens to progesterone and increased serum testosterone levels that may be associated with an increased risk of BC (Ries, Melbert, Krapcho, Stinchcomb and Mariotto, 2000).

Tobacco smoke

Most studies have found no link between active cigarette smoking and BC. An issue that continues to be a focus of research is whether second hand smoke (smoke from another person's cigarette) may increase the risk of BC. But the evidence about second hand smoke and BC risk in human studies is not clear. In any case, a possible link to BC is yet another reason to avoid being around secondhand smoke.

Night work

A few studies have suggested that women who work at night (nurses on the night shift, for example) have a higher risk of BC. This is a fairly recent finding, and more studies are being done to look at this issue (American Cancer Society, 2009). Scientists revealed that women who routinely work night shifts duties have increased risk of 60% of developing BC (Spratt and Karen, 2006; Schernhammer et al, 2001). This is because the body's production of melatonin (a hormone that produces among other tasks, regulation of sex hormones) peaks during night time /darkness. That is to say, exposure to bright light during the night decreases the melatonin production, implying increase estrogen levels. These studies may account for why women in the industrialized nations, who are exposed to more artificial light at night, have greater risk of BC than those in the developing countries (Redmond and Karen 2005; Hanseen, 2001; Baldwin and Barrette, 1998)

Genetics

It is known that 5 to 10% of BC cases are inherited (Anon, 2009; American Cancer Society, 2007). There is usually a defect in one of two genes namely BRCA1 and BRCA2 (BC Genes 1 and 2). All these traits share one common feature: they

contribute to a longer lifetime exposure to estrogen, which can spur the growth of breast cells into cancerous tumors. Estrogen levels rise at the onset of menstruation and decrease at menopause. Increasing physical activity and eating a diet rich in fruit and vegetables may decrease risk of developing BC (American Cancer Society, 2009; Anon 2009; Suzan, 2006).

Black women may be at increased risk for aggressive, difficult-to-treat triple-negative BC, independent of their age and weight (Carol, 2008). Tumors that did not express estrogen or progesterone receptors or HER2 were three times more common among black women than among white women. The effect of race or ethnicity in the single center cohort did not vary with age and body mass index, suggesting that triple-negative disease "likely contributes to black women's unfavorable BC prognosis," the researchers said. Other researches have shown that compared to women of other races, African-American women are less likely to be diagnosed with BC and more likely to be diagnosed with advanced stage of BC, if diagnosed. They are more likely to be diagnosed with BC that is aggressive and harder to treat (Olopade, Kramtsova, Ndoma, Egbe, Adelusola...and Falusi, 2005; James, 2005).

Long use of brassier

Anon (2009) reported the risk of developing BC from wearing brassier for 24 hours. A study carried out by Siahpush and Singh (2002) revealed that three out four women studied who wore a brassier for 24 hours developed BC compared to one out of 168 who wore brassier rarely or never. The brassier does not by itself cause BC but it restricts the flow of lymph within the breast tissue, thereby hindering the normal cleansing process of the breast tissue. Scientists say that many environmental factors associated with BC, are fat loving and so tend to reside in the breast tissue and lymph fluid carry away these materials, waste products, dead cells and toxins from the breast (National Cancer Institute, 2002). The reporter Anon (2009) reported that statistics reveal that more women are getting BC in Nigeria and the public need to know the link between bra and BC so that women can limit how many hours a day to wear a bra.

2.1.6 Signs and Symptoms of BC

Cancer may be regarded as a group of diseases characterized by an:

- Abnormal growth of cells
- Ability to invade adjacent tissues and even distant organs, and
- The eventual death of the affected person if the tumour has progressed beyond the stage when it can not be successfully removed (Park, 2007).

According to Abubakar (2008), cancer is an uncontrolled growth and the spread of its cells which can affect almost any part of the body. The growth often invades surrounding tissues and can spread to distant sites. Early stages of BC commonly do not produce symptoms and is usually painless, so it is vital to have monthly BSE, mammograms and clinical breast examination according to schedule (American Cancer Society, 2006). The earlier BC is found, the better the persons' chances for successful treatment.

The signs and symptoms include:

- A lump in the breast
- Nipple discharge other than breast milk
- Changes in the skin such as redness or skin retraction, irritation or dimpling
- Nipple pain or retraction (turning inward)
- Redness or soreness of the nipple or breast skin (Spratt and Karen, 2006).

2.1.7 Diagnostic Methods for Detecting BC

The list of diagnostic tests mentioned in various sources (Madong, Obekpa and Orkar., 1998; Adaramola, 2009) as used in the diagnosis of BC includes:

- Breast Self Examination
- Clinical Breast Examination
- Mammography
- Ultra-sonography

Breast Self Examination

Breast Self Examination (BSE) has been defined as a preventive health behavior, "an activity undertaken by a person, who believes she is to be healthy, but for the purpose of preventing disease or detecting disease in an asymptomatic state" (Ertem and Korcer, 2009). BSE involves examining one's own breast using a specific palpation technique to detect any lump in the breast tissue (ACS, 2007). It is one of the ways which involves a careful step-by-step approach to looking at and feeling one's breasts. Other women are more comfortable simply by looking and feeling their breasts in a less systematic approach, such as while showering or getting dressed or doing an occasional thorough examination (ACS, 2008). BSE is a tool that may help to learn that which is normal within the breast; and it includes both looking and feeling over the entire breast and chest area, and as a general rule should be performed once a month. Beginning in their 20s, women are enlightened about the benefits and limitations of BSE, how their breasts normally look and feel and enjoined to report any new breast changes to a health professional as soon as they are found (BSE procedure is extensively discussed in section 2.8 below).

A woman who is familiar with the feel of her breasts and performs monthly BSE can detect a nodule 6.4 mm or less in size, considerably smaller than the 1-cm nodule that's readily detectable by an experienced examiner. The best time to conduct BSE is about a week after the beginning of the menstrual period, when the breasts are at their least tender state. Also it can be done 3-5 days after your period, when the breasts are the least tender and lumpy (Marinho, Costa-Gurgel, Cecatti and Osis 2003).

BSE according to Suzan (2006) is tool that may help women learn what is normal for them. Although the effectiveness of BSE has not yet been adequately quantified, Chiedozi (1985) suggested that, BSE is a simple, very low cost, non-invasive adjuvant screening method for the detection of early BC in women. Its purpose is important in case of a prompt reporting of breast symptoms which are important early detection messages for women of all ages, and to make women familiar with both the appearance and the feel of their breasts as early as possible.

According to Harvey, Mler, Baines and Cor (1997) there is evidence that show association between regular BSE and more favorable clinical and pathological stages of BC. There is evidence that women who correctly practice BSE monthly are more likely to detect a lump in the early stage of its development, and early diagnosis has been reported to influence early treatment and to yield a better survival rate (American Cancer Society, 2000). Recent estimates suggest that screening by BSE has a sensitivity of about 54% and a specificity of about 94% (Mahmud, Faiza, Jaunita and Shaisha, 2006; Ali-Abu-Salem and Abdullah, 2007).

A study by Balogun and Owoaje (2004), on knowledge and practice of BSE in Ibadan, South West Nigeria among female traders, revealed that the knowledge (awareness) of BSE was higher in women who had tertiary education but the practice was among women aged 50-59 years. This evidence indicates that educated women who were below age 50 do not practice BSE even though they were aware. The reason identified for the non practice was the perception that BC is a disease of the aged. Contrary to the above perception, there is a need to reconsider how to screen for a disease (BC) that is less common but starts sooner and moves faster in African women. Another study carried out among women in Korea found that BC is most common in their 40s and that suggests why the Korean guide encourages that women aged 20 years and older should perform monthly BSE and women aged 30-34 years receive base-line mammography (American Cancer Society, 2005). Approximately 70% to 80% of all breast masses can be self detected (Veronesi et al, 2005; Venkirtaraman, 2002 and American Cancer Society, 2007), yet many women fail to carryout this important, affordable and very easy to perform procedure (Champion, 1992).

A meta-analysis of studies investigating the possible benefits of BSE has shown that regular practice increases the probability of detecting BC at an early stage (Ferro et al, 2001). However, BSE is associated with other drawbacks including the following:

- Increased number of biopsies for benign breast lesions (Thomas, Gao, Ray, Wang, Pan, 2002).

- Increased anxiety and physician visits with consequent use of scarce health resources in addition to the distress, scarring and disfigurement that may be associated with breast biopsies.
- Many false positive results (may be an age specific effect).
- Worry about finding lumps that may or may not be cancer.
- Guilt about not doing it at all,
- Guilt about not doing it promptly,
- Reward for excellent BSE is a disease, which is also perceived as a negative outcome.

Some women do not become willing to perform BSE because they perceive the technique to be complicated and they have little confidence in their ability to do it correctly (Customer, 1994).

Clinical Breast Examination

Clinical Breast Examination (CBE) is another method of breast examination which is carried out by a health worker on the patient within the health care facility. This examination of the breast is done in such a way to show respect for the privacy and comfort of the patient. It involves a systematic approach which starts with the patient in an upright position with careful visual inspection of masses, skin and nipple changes, and asymmetries. Palpation should be done to include all the breast quadrants, the nipple-areola complex, the auxiliary tail and the axilla. Simple maneuvers like stretching the arms high above the head, tensing the chest muscles may help accentuate asymmetries and dimpling.

There is evidence suggesting that CBE detects most BCs found by mammograms, and also some missed lumps by mammogram particularly in younger women. In some countries, the cost of screening mammography are considered to be high and policy makers are considering implementing screening programs based on CBE rather than mammography (Carol et al, 2006).

Mammogram

Mammography is a special X-ray technique that is used to visualize soft tissues of the breast as a means for screening women for BC. The mammogram shows calcification (dense white flecks) in a cancerous tumor. The majority of BCs originate in the duct of the mammary, or milk-secreting, gland. The remainder arises in the glands themselves. Most tumors of either type show early evidence of invasive (malignant) behavior, but both may also exist in noninvasive forms (Spratt and Karen, 2006).

When used in this way, they are called diagnostic mammograms. They can be used to find out more about a breast lump (mass), nipple discharge, or an area found on a screening mammogram that doesn't look normal. In some cases, special images known as cone views with magnification such as Imaging Mammography, Dittography, Ultra-sonography and MRI are used to "zoom in" on a small area of altered breast tissue to make it easier to evaluate.

Mammography and CBE facilitate early detection and treatment of BC, which is responsible for lower mortality rates in women of the developed worlds (Siahpush & Singh, 2002). Mammography and CBE are not a routine part of regular medical examination in Nigeria; it is used for patients at higher risk of BC (Oluwatosin & Oladejo, 2006). It has been suggested that women who practiced BSE should also be sure to get mammograms and clinical breast examinations at the appropriate age. BSE should not be substituted for these screening tests (American Cancer Society, 2005). The annual mammography beginning at 50 years is not the best route to early detection in African women, who get the disease and die from it in their 40s (Olopade et al, 2005).

Ultra-sonography

Ultrasound, also known as sonography, is an imaging method that uses high-frequency sound waves to look inside a part of the body. A handheld instrument placed on the skin transmits the sound waves through the breast. Echoes from the sound waves are picked up and translated by a computer into a picture that is

displayed on a computer screen. This test is painless and you are not exposed to radiation.

Breast ultrasound is sometimes used to evaluate breast problems that are found during a screening or diagnostic mammogram or on physical exam. Ultrasound is not routinely used for BC screening. Ultrasound has become a valuable tool to use along with mammograms because it is widely available, non-invasive, and less expensive than other options such as Breast biopsy, Fine-needle aspiration biopsy, Needle biopsy, Surgical biopsy, Lymph node tests, Bone tests, Liver tests, Lungs tests, (American Cancer Society, 2008).

2.1.8 Incidence of BC

Worldwide, BC is the second most common type of cancer after lung cancer, its incidence in both sexes is 10.4% (WHO, 2003) and the fifth most common cause of cancer death (WHO, 2006; American Cancer Society, 2000). One in ten of all new cancers diagnosed worldwide each year are a cancer of the female breast, and it is the most common cancer in women in both developing and developed areas of the world (Boyle, 2009). In 2005, BC caused 7% of cancer deaths; almost 1% of all deaths (WHO, 2003). It is estimated that 182,460 women will be diagnosed with and 40,480 women will die of cancer of the breast in 2008 (National Cancer Institute, 2005). Incidence rates are higher in the developed countries than in the developing countries and Japan. Incidence rates are also higher in urban areas than in the rural areas. In 2000, cancer of the breast resulted in an estimated 189,000 deaths in developed countries and 184,000 deaths in developing countries, accounting for 16 and 12 percent, respectively, of all cancer deaths in women. While the age-standardized incidence of BC is generally lower in developing countries than in developed countries (National Cancer Institute, 2002).

There is increasing evidence that BC is on the rise in Nigeria (BRECAN, 2008). Available data from Ibadan Cancer Registry of 2005 indicate that BC accounted for 6% of the commonest cancers recorded during 1960-1980 period and rose to 14.8% between 1980 and 1985. Within the cancers of the female, BC maintained the trend

rising from 11.2% to 25.7% during 1960-1980 and 1980-1985 periods respectively. A recent study by doctors at the University College Hospital, Ibadan as reported by The Punch Newspaper (Anon, 2009) gave credence to the emerging trend revealing that 116 out of 100,000 Nigerian women have BC. Based on this finding, 34,800 new cases would be expected in 2003, an increase from 27,840 or 25% in 1999. There are also findings indicating that the peak age incidence is 36 to 45 with a smaller secondary peak at 56 to 65. The mean age of 48 years at presentation is in marked contrast to reports of Caucasian patients in whom the peak age incidence is almost two decades later (American Cancer Society, 2007).

According to the BC Association in Nigeria (BRECAN, 2008), BC is getting more common among Nigerians- especially amid the younger people and it carries in its wake grave socioeconomic consequences. It is estimated that between 7 per 10,000 new cases of BC developed in Nigeria in 2005 (Adebamowo and Adekunle, 1999). In Nigeria today, hardly a week passes without one hearing of a death caused by BC. Yet our government has not placed BC on its priority list of health issues (BRECAN, 2008). Government failure in formulating a national policy to arrest the increasing number of untimely deaths of our women due to BC is to say the least most fatal and unrealistic. In fact, the government is not the only culprit. The general indifference surrounding the disease is scandalous. This is a disease that kills thousands of Nigerian women in their prime each year and equally affecting millions (BRECAN, 2008).

2.1.9 Prevention of BC

Screening as currently practiced can reduce the mortality rate of BC but not rate of incidence, and then only in a particular age group. Advances in treatment have produced significant but modest survival benefits. A better appreciation of factors important in the etiology of BC would raise the possibility of disease prevention. Currently, prevention strategies fall into three groups: advocacy, chemoprevention and surgical prophylaxis.

Advocacy

In many countries where the incidence of BC is not great enough to pose a public health problem, the government, medical professionals, and the public may not recognize its importance. Advocacy directed to government officials and policy makers can place BC on the national agenda, encourage the development of systematic health policies and service protocols, and increase women's access to detection and treatment services. While such policies can be implemented, however, health care systems must raise the awareness of front-line providers and teach them skills to recognize the symptoms of BC and make appropriate referrals.

Researchers have developed a new vaccine that stimulates the immune system to seek out and destroy BC cell, but it has not been tested on humans (BBC, 2008). Unlike flu and many other vaccines, most cancer vaccines under development are not intended to be given to healthy people to prevent disease. Rather, they help sick patients bolster their immune system to better fight the cancer. In this case, the goal is to re-educate the immune system to recognize BC cells as foreign invaders that need to be attacked and annihilated (Neave, Mason and Kay, 1990).

Chemoprevention

Chemoprevention is defined as the systemic use of natural or synthetic chemical agents to reverse or suppress the progression of a pre-malignant lesion to an invasive carcinoma (Houssami, Cuzick and Dixon, 2006). Tamoxifen is currently the only agent that has been approved clinically for use in women with high risk of developing cancer. Raloxifene, selenium, retinoid, aromatized inhibitors and cyclo-oxygenase 2 inhibitors require further clinical investigation before adoption in this context (American Cancer Society, 2008).

Surgical prophylaxis

Surgical procedure either by a bilateral mastectomy or oophorectomy is another avenue of prevention. Some studies have demonstrated that women with definite BRCA1 or BRCA2 mutation may have an overall reduction in their BC risk profile

after such operation (Prichard et al, 2003). In the past, a pregnant woman found to have BC had to make the difficult decision of having to save her own life or the life of the unborn child. New treatment guidelines allow women to have a mastectomy or a breast conserving lumpectomy and commence chemotherapy as early as the second trimester (Breastcancer.org, 2004). Some studies have shown that there have been little or no adverse effects on the fetus while others have shown that the development of the fetus may be affected by chemotherapy. Radiation and estrogen therapy may harm the fetus and should be delayed until after the birth of the child (Houssani et al, 2006).

Control of high Risk Factors (American Cancer Society, 2002)

Although risk factors such as sex, age, or family history cannot be controlled, other general lifestyle choices which can help in reducing the risk of BC and other cancers can be controlled.

Below are some positive steps that could be taken:

1. Determine the risk i.e. if one is at high risk of developing BC because of family history or other risk factors, regular mammograms are recommended. Also, if one is age 40 and above, it is advisable for such to always perform an annual mammogram and a CBE by a doctor or other health workers as well as performing a monthly BSE.
2. Have a breast examination regularly i.e. if an individual is aged 20 to 39 years old, a CBE every three years, and performing a monthly BSE is highly recommended.
3. Avoid postmenopausal hormones. Do not take hormone therapy, unless you and your doctor decide that the benefits outweigh the risks for you.
4. Control your weight. Avoid gaining weight, particularly after menopause.
5. Limit alcohol. If you drink alcohol daily, talk with your doctor about whether reducing consumption would be prudent.
6. Do not smoke.

There are other suggestions by James (2005) sent through electronic-mail of some certain risk factors to BC as best alternatives to chemotherapy if they are avoided. These findings have not been fully investigated. They include:

1. Sugar (all forms) is a cancer-feeder. By cutting off sugar it cuts off one important food supply to the cancer cells. Sugar substitutes like NutraSweet, Equal, Spoonful, etc are made with Aspartame and it is harmful. A better natural substitute would be Manuka honey or molasses but only in very small amounts..
2. Milk causes the body to produce mucus, especially in the gastrointestinal tract. Cancer feeds on mucus. By cutting off milk and substituting with unsweetened soy milk cancer cells are being starved
3. Cancer cells thrive in an acid environment. A meat-based diet is acidic and it is best to eat fish, and a little chicken rather than beef or pork. Meat also contains livestock antibiotics, growth hormones and parasites, which are all harmful, especially to people with cancer.
4. A diet made of 80% fresh vegetables and juice, whole grains, seeds, nuts and a little fruit help put the body into an alkaline environment. About 20% can be from cooked food including beans. Fresh vegetable juices provide live enzymes that are easily absorbed and reach down to cellular levels within 15 minutes to nourish and enhance growth of healthy cells. To obtain live enzymes for building healthy cells try and drink fresh vegetable juice (most vegetables including bean sprouts) and eat some raw vegetables 2 or 3 times a day.
5. Avoid coffee, tea, and chocolate, which have high caffeine. Green tea is a better alternative and has cancer-fighting properties.
6. Cancer cell walls have a tough protein covering. By refraining from or eating less meat frees more enzymes to attack the protein walls of cancer cells and allows the body's killer cell to destroy the cancer cells.
7. Cancer is a disease of the mind, body, and spirit. A proactive and positive spirit will help the cancer warrior be a survivor. Anger, resentment, and

bitterness put the body into a stressful and acidic environment. Learn to have a loving and forgiving spirit. Learn to relax and enjoy life.

8. Cancer cells cannot thrive in an oxygenated environment. Exercising daily and deep breathing help to get more oxygen down to the cellular level. Oxygen therapy is another means employed to destroy cancer cells.

2.2 Nurses knowledge of BC and Practice of BSE from previous studies

Healthcare workers are a direct source of medical information to the public and patients. Due to their frequent contact with patients and their relatives, nurses particularly are often looked upon to provide information and support regarding medical problems, including cancer. This extends not just to patients but also to their own circle of family and friends (Seah and Tan, 2002).

Clinical experience appeared to influence level of knowledge and practice in a study carried out among health care professionals in Singapore (Chong. et al, 2002). It was found that the knowledge scores and BSE rates were higher in those who had seen and managed BC patients. This is not surprising as actual involvement with the care of patient would have a greater impact on the nurses' understanding of the disease. This might then also increase their health awareness and thus their practice of BSE (Chong et al, 2002). However studies in some developing countries show diverse results ranging from poor to good knowledge about BC. Among the Nigerian nurses studied, about half were well-informed about two out of five risk factors provided (Odusanya & Tayo, 2001). Sixty percent Iranian nurses correctly identified family history as a risk factor for BC, while smaller proportions knew about other risk factors (Ertem and Korcer, 2009; Demirkiran, Balkaya, Memis, Turk, Ozyumas and Tuncyurek, 2007). Most of the Jordanian nurses were able to correctly answer the general BC questions which included risk factor questions (Ali Abu-Salem and Abdullah, 2007). The knowledge of BC risk factors among the nurses of Karachi was low and this is similar to that seen in other developing countries (Odusanya and Tayo, 2001; Demirkiran et al, 2007).

Similarly, in a study carried out among female health workers in a Nigerian urban city 55% revealed a very low knowledge about BC risk factors (Agboola et al, 2009; Akhigbe and Omuemu, 2009).

Since the nurses can have a major influence on the behaviour of our women, they need to be knowledgeable about BC risk factors and the importance of early detection of BC through screening (Ahmed et al, 2006). It is conceived that risk factor knowledge is mostly acquired during classroom teaching compared to exposure at the workplace.

The low level of risk factor knowledge among nurses in the developing countries is suggestive of insufficient emphasis on the importance of primary prevention in the nursing curricula. In spite of rigorous efforts towards improving medical education in the developed countries, it has been realized that healthcare professionals including nurses are not adequately educated about cancer risk factors, risk assessment and cancer prevention (Ahmed et al, 2006; Akhigbe and Omuemu, 2009; Odusanya et al, 2001). BC risk factor knowledge among nurses is important so that they can provide appropriate screening recommendations to women with a high risk profile, especially in the Nigerian context where BC screening is just becoming a national phenomenon.

A hospital-based study in Lahore, Pakistan, reported good levels of knowledge about BC risk factors and screening methods among doctors and nurses (Chong, et al, 2002). However, the knowledge was not objectively evaluated and hence valid conclusions about the level of BC knowledge among this group cannot be made. Also when a self-administered questionnaire was sent to 447 Singapore nurses in the Public Health Service to examine their knowledge and practice of BC screening; it was found that nursing qualifications, current nursing post, and current workplace were significantly related to Singapore nurses' knowledge about BC. Nurses who were 50 years of age and above, had ever been married, and had a positive history of breast disease were more likely to have had a mammogram (Chong et al, 2002).

Franek, Nowak-Kapusta and C (2004) also studied a sample of 193 Polish nurses to evaluate their knowledge of methods of early detection of BC and the extent to which they used them. The results showed that 63% of nurses knew about the early detection of BC. Almost 50% of nurses performed BSE regularly; unfortunately, not all of them did it correctly. Despite their education, nurses were not knowledgeable enough about methods to prevent and detect BC.

2.3. Knowledge of breast self examination

Breast Self Examination (BSE) has been defined as a preventive health behavior, "an activity undertaken by a person, who believes she is to be healthy, but for the purpose of preventing disease or detecting disease in an asymptomatic state" (Ertem and Korcer, 2009). BSE involves examining one's own breast using a specific palpation technique to detect any lump in the breast tissue (American Cancer Society, 2007). It is one of the ways which involves a careful step-by-step approach to looking at and feeling one's breasts. Other women are more comfortable simply by looking and feeling their breasts in a less systematic approach, such as while showering or getting dressed or doing an occasional thorough examination (American Cancer Society, 2008). BSE is a tool that may help to learn that which is normal within the breast; and it includes both looking and feeling over the entire breast and chest area, and as a general rule should be performed once a month. Beginning in their 20s, women are enlightened about the benefits and limitations of BSE, how their breasts normally look and feel and enjoined to report any new breast changes to a health professional as soon as they are found (BSE procedure is extensively discussed below).

A woman who is familiar with the feel of her breasts and performs monthly BSE can detect a nodule 6.4 mm or less in size, considerably smaller than the 1-cm nodule that's readily detectable by an experienced examiner. The best time to conduct BSE is about a week after the beginning of the menstrual period, when the breasts are at their least swollen and tender state also it can be done 3-5 days after your period, when the breasts are the least tender and lumpy (Marinho, Costa-Gurgel, Cecatti and Osis 2003).

2.4. Perception of Vulnerability of BC among Nurses

Breast cancer has become the most common cancer amongst women in Nigeria resulting in increased morbidity and mortality (Okobia et al, 2006; Adesunkami et al, 2006). Its incidence in Nigeria has risen significantly over the decades and is expected to continue to rise sharply through the years. As detection of breast cancer in its early stages is amenable to almost complete cure, it is thus important to educate the public on the need for early detection of breast cancer by breast cancer screening such as breast self examination clinical breast examination and mammography.

Being on the frontline of patient care, nurses are in a unique position as they have a supportive role in educating and motivating patients on breast cancer screening in the primary health care setting. Due to their key role in patient education, it would be interesting to explore these nurses' knowledge and practice on breast self examination and perception of vulnerability to breast cancer which may indirectly influence their patients' understanding and practice of breast examination.

In spite of the increasing risk of BC, the early detection and diagnosis rates of BC are considerably lower among Nigerian women than among women in Western countries (Adebamowo and Ajayi, 2000; Boyle, 2009; Aderounmu, Egbewale, Ojofeitimi, Fadiora Oguntola, and Akanbi, 2006). In the mid 1970s, Henry Penny Packer, an American psychologist was disturbed to hear that women were not detecting cancerous lumps in their breasts until the growths were so large and were hard to treat. He believed there had to be a way to help women find lumps sooner, when they are the size of a pea. According to him,

"If we can teach the fingers to read Braille, then we can surely teach them to find breast lumps smaller than golf balls. 'Why not detect lumps as small as three millimeters? It seemed possible'" (Murray, 1998).

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In a study carried out among nurses in Singapore, in the area of knowledge in breast cancer the majority of the nurses had correct answers for most questions except those

on the risk factors of breast cancer and this may influence their perceived vulnerability to breast cancer (Chong, Krishnan, Hong and Swah, 2002; Spratt and Karen, 2006). Similarly a study among teachers and nurses in Turkey revealed that they had high knowledge on the risks to breast cancer and therefore Fear of having breast cancer was the most frequent reason for performing BSE (Dimirkiran et al. 2007).

On the other hand a study conducted among women in a rural setting revealed a significant differences in perceptions of vulnerability to BC in that in the four questions on vulnerability, majority (61%) did not perceived themselves as vulnerable to BC as they increase in age and so did not participate in screening measure for BC (Rahman and Rahman, 2008).

A recent study has implicated in Turkey among teachers that their high knowledge in factors such as age, gender, eating behaviour and dietary factors as risk factors of important diseases such as cancer, indicated a potential impact of preventive practices against it (Turgay, Sari.Ceber and Turkistanli, 2005). In Nigeria a study among female civil servants in Benin City demonstrated low knowledge of BC risks. One hundred and forty four (37.5%) respondents knew that a positive family history of breast cancer is a risk factor and one hundred and thirty five (35.0%) respondents have heard of mammography, only twenty seven (7%) respondents go for yearly mammography screening (Osime, Okojie and Aigbekaen, 2008).

A few studies though not yet conclusive have suggested that women who work at night (nurses on the night shift, for example) have a higher risk of breast cancer. This is a fairly recent finding, and more studies are being done to look at this issue (American Cancer Society, 2008).

2.5. Breast Self Examination Procedure/skill

Breast self-exam (BSE) is an option for women starting in their 20's. By performing BSE monthly, a woman get to know how her breasts feel normally and she will be able to quickly feel any change (Mercy Cedar Rapids, 2004). BSE should be done every month to help detect BC. Women train their fingers to use differing degrees of

pressure as they press the tissue, so they can detect lumps attached to the rib cage, free floating or attached to the outermost layer of the breast (Murray, 1998).

According to Harvard University physician Murray (1998), research-proven track record of catching smaller lumps than do circular or radial patterns of BSE has been discovered. The pattern called 'Mamma Care' was developed by a psychologist Penny Packer. The method is just now catching on among health professionals and patients, and is replacing older methods as the mainstay of breast exam. Using the method, women cover a wide swath of the chest where lumps might lurk and distinguish potentially harmful lumps from normal fibrous breast material. They do this by palpating the breasts in vertical strips and using varying amounts of pressure (Murray, 1998).

2.5.1 Steps of demonstration of BSE (American Cancer Society, 2006)

- Examine the breast at the seventh day of the beginning of your menstrual cycle or three to five days after your period.
- Look at breasts in the mirror with arms at sides
- Look at breasts in the mirror with arms raised over the head
- Look at breasts in the mirror with arms placed over the hips and also look at breasts in the mirror as you bend forward.
- When looking at the breasts in the mirror, look for swelling, dimpling of skin, or changes in nipple.
- When examining the breast while lying down, place a towel or pillow under the shoulder before examining breast.
- Use the right hand to examine the left breast and the left hand to examine the right breast.
- Examine one breast at a time
- Examine the breasts in a circular, clock wise motion moving from outside /armpit inward.

- When examining the breast, feel for lumps, hard knots, or thickening. red or hot skin, orange peel skin, dimpling or puckering, changes in the nipple axis, itch or rash, especially in the nipple area.
- Squeeze the nipple of each breast to look for discharge, bloody or spontaneous discharge.

2.5.2. Positions and techniques for BSE

In Front of the Mirror

Some breast disorders will reveal themselves by changes obvious to visual inspection. Again, it is important to become familiar with the normal appearance of your breasts. no woman has two exactly identical breast; many women's breasts are markedly dissimilar. What is important in visual BSE is not the normal difference between the two breasts but any change in one breast without a similar change in the other.

Technique

Examine the appearance of the breasts (1) with arms relaxed at your sides; (2) with arms raised; (3) with hands clasped in front of the forehead, palms squeezed together, to tighten chest pectoral muscles; (palms flat on sides of hips, pressing down). In each of these positions, observe your breast first directly facing the mirror, then while slowly turning from side to side.

In the Shower

Many lumps are more easily felt when breast and fingers are wet and slippery with soap lather because friction has been reduced. If the breasts are small, place one hand on the head and examine the breast on the side with the opposite hand in an up-and-down pattern, as it is done when lying in bed. If breasts are large or pendulous, it will be better to feel them if the breast is immobilized with one hand (first supporting from below, then pressing down from above) and examine it with the other hand (first from above, and then from below).

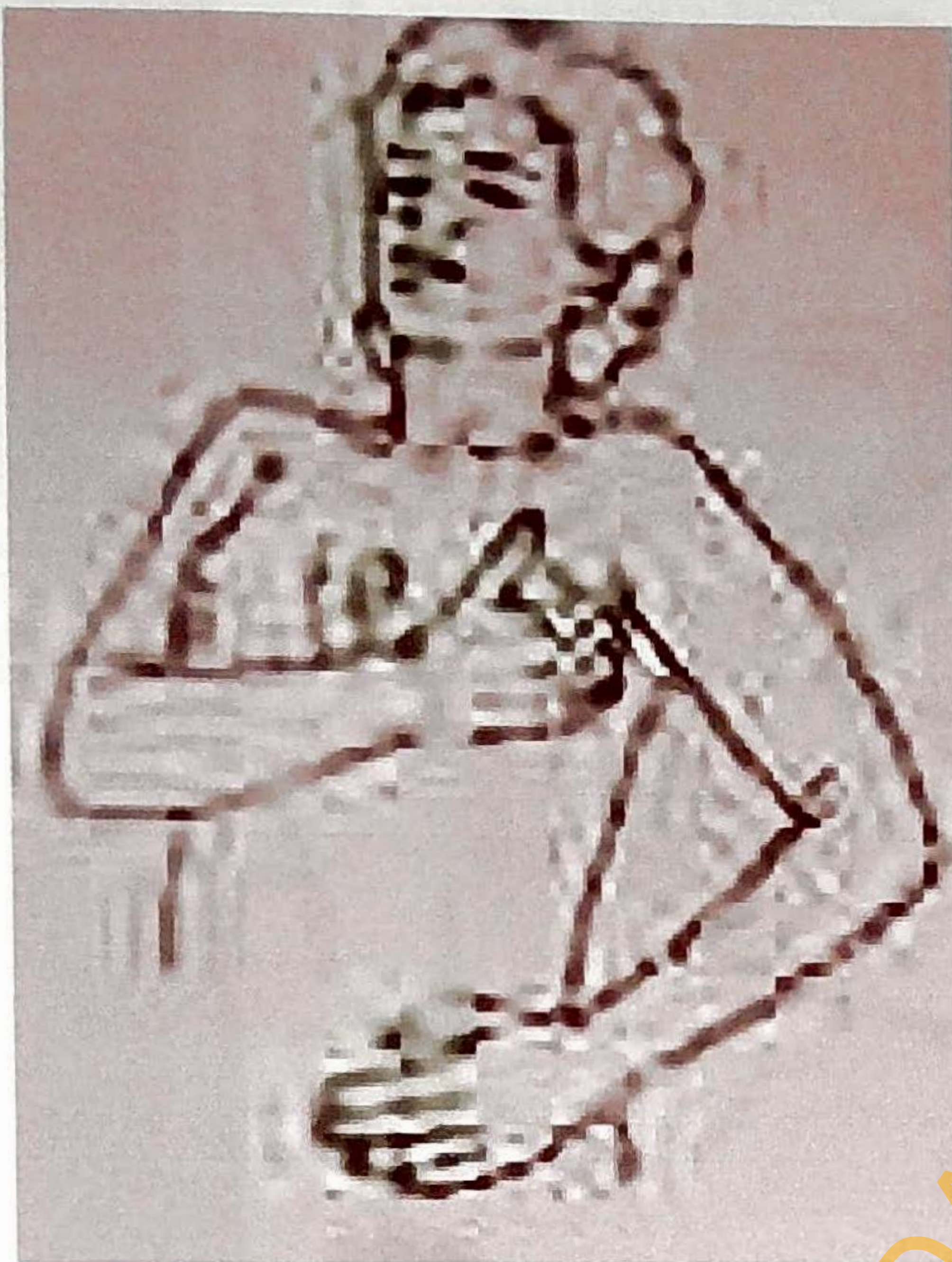


Figure: 2.2. Standing position (in front of the mirror)

Source: American Cancer Society (2006).



Figure: 2.3. Standing position (in the shower)

Source: Mercy Cedar Rapids (2004)

Lying In Bed Position

Place a pillow or folded towel under the left shoulder and the left hand behind the head. Shoulder should be raised high enough for left breast to be centered on top of the chest, falling neither to the center nor toward the armpit. If a breast is not properly flattened against the chest, it is difficult to feel a lump, particularly in the outer upper quadrant, where tissue is thickest (and where most malignancies may occur).

Technique

A careful and systematic feeling of your breasts will give a touch picture of their normal structure and condition. Also use your right hand to examine your left breast and vice-versa. Use two or three fingers, keeping the thumb extended and always feel with the sensitive pads of the flat inner surfaces of the fingers. Do not use fingertips as they are less sensitive and long fingernails will impede the examination. Never compress the breast between thumb and fingers as this may cause feeling a "lump" that doesn't exist. Be thorough. Examine the entire area, including the lymph nodes from your collarbone to just below the breasts and from armpits to breastbone

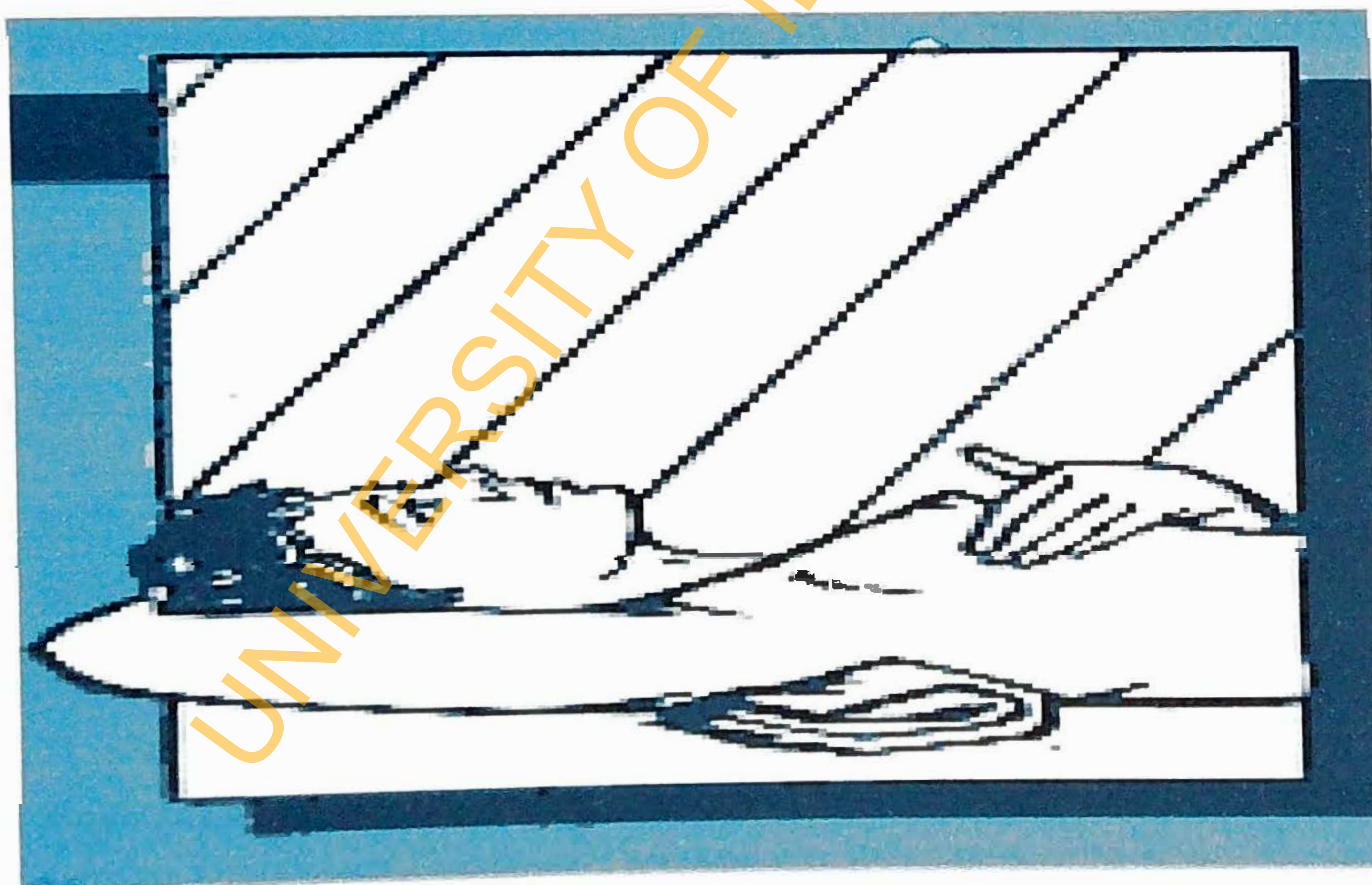


Figure 2.4 lying in bed position for BSE

Source: Mercy Cedar Rapids (2004)

2.6. Guidelines/ Policy for Breast Cancer Screening

Considering the fact that breast cancer is still the most common type of cancer among women in the US (National Cancer Institute, 2006), if women will likely be diagnosed with breast cancer early, most breast cancers can be cured. The primary aim of a breast screening programme is to reduce mortality from breast cancer through early detection. Systematic early detection through screening, effective diagnostic pathways and optimal treatment have the ability to substantially lower current breast cancer mortality rates and reduce the burden of this disease in the population (Ferlay, Autier and Bonoil, 2006).

For these to be achieved, a supportive provision of highly effective diagnostic services and the setting up of specialist breast units for treatment of women, irrespective of whether a breast lesion has been diagnosed within a screening programme or not, must be in place (Ferlay et. al 2006). By 1995, there were at least 22 countries worldwide where national, regional or pilot population-based breast cancer screening programmes have been established. This was done through a collaborative effort by the International Breast Cancer Screening Network (IBSN), an international voluntary collaborative effort administered from the National Cancer Institute in the US for the purposes of producing international data on the policies, funding and administration, and results of population-based breast cancer screening (Shapiro, Coleman, Broeders, Codd, de Koning, Fracheboud...and Ballard-Barbash, 2006).

Following the Danish investigators who analyzed several international studies used by leading health associations to make their recommendations on mammography that it did little to detect BC and thus saves lives, mammography remains the cornerstone of population-based breast cancer screening (American Cancer Society, 2007). Because after an extensive review of that work, the analysis suggested that the research had a number of flaws. Therefore due attention must be paid to the requisite quality, required for its performance and interpretation, in order to optimize benefits and lower mortality (Ferlay et al., 2006).

According to Debbie Saslow, PhD, director of breast and gynecologic cancer and Harold Burstein, MD, PhD, member of the breast cancer team for the Dana-Farber Cancer Institute, at the American Cancer Society puts that,

"Absolutely, mammography does have a benefit. It decreases death from breast cancer," "In terms of the treatments that have been proven to help early detection, and therefore early survival of breast cancer, only mammography has really been proven to be a very valuable treatment". There is an 85% chance that a mammogram will find breast cancer, says Saslow, noting the percentage is significant, even if it's not 100%.

This recent reaffirmation of mammograms has yielded the following guidelines:

- American Cancer Society and the Dana-Farber Cancer Institute recommend that all women get a mammogram every year beginning at age 40.
- The National Cancer Institute advocates screening every one to two years for women 40 years and older. Women with higher than average risk of getting breast cancer are also encouraged to ask their doctors if they should start screening at an earlier age, and how often they should have it done.
- The US Preventive Services Task Force advises women 40 and older to get a mammogram, with or without a breast examination performed by a doctor, every one to two years.

2.6.1 New Policy on Breast Self Examination

It is estimated that in the United States 209,060 cases of breast cancer will be diagnosed and 40,230 people will die from this disease in 2010. Breast cancer is the most commonly diagnosed cancer among women. Despite these large numbers, the death rates from breast cancer have been steadily falling since 1990 (American Cancer Society, 2010). The three major ways to screen for breast cancer are self examination, clinical examination, and mammography. Since no one method is 100% effective, it is suggested that all three be used regularly.

Still, a monthly self exam is a great way of becoming familiar with the texture of your own breasts, says Meissner.

"There may be insufficient evidence to recommend performing a self breast exam, but it doesn't mean that women shouldn't do it."

Women age 40 and older should have a mammogram every year and should continue to do so for as long as they are in good health. Current evidence supporting mammograms is even stronger than in the past. In particular, recent evidence has confirmed that mammograms offer substantial benefit for women in their 40s (American Cancer Society, 2011).

Women in their 20s and 30s should have a clinical breast exam (CBE) as part of a periodic (regular) health exam by a health professional preferably every 3 years. Starting at age 40, women should have a CBE by a health professional every year. CBE is done along with mammograms and offers a chance for women and their doctor or nurse to discuss changes in their breasts, early detection testing, and factors in the woman's history that might make her more likely to have breast cancer (American Cancer Society, 2011).

Breast self-examination (BSE) is an option for women starting in their 20s. Women should be told about the benefits and limitations of BSE. Women should report any breast changes to their health professional right away. Research has shown that BSE plays a small role in finding breast cancer compared with finding a breast lump by chance or simply being aware of what is normal for each woman (American Cancer Society, 2011).

Women at high risk (greater than 20% lifetime risk) should get an MRI and a mammogram every year. Women at moderately increased risk (15% to 20% lifetime risk) should talk with their doctors about the benefits and limitations of adding MRI screening to their yearly mammogram. Yearly MRI screening is not recommended for women whose lifetime risk of breast cancer is less than 15% (American Cancer Society, 2011).

2007 Addendum

Women at increased risk of breast cancer based on family history, results of genetic testing, or clinical factors interventions and Practices Considered are:

- Annual mammography beginning at age 40
- Clinical breast examination (CBE)
- Breast self-examination (BSE)
- Screening of older women with co morbid conditions
- Screening of women at high risk using magnetic resonance imaging (MRI)

Table 2.1 American Cancer Society (1992) recommendation for early detection of breast cancer in asymptomatic people

Test/Procedure	Sex	Age	Frequency
Breast self examination	Female	>20	Every month
Clinical breast examination	Female	20-40	Every 3 years
Clinical breast examination	Female	>40	Every year
Mammography	Female	40-49	Every 2 years
Mammography	Female	>50	Every year

Screening mammography is not recommended for women under forty years of age

Source: (Oluwatosin, 2008)

2.7. Behaviour Determinants of BSE Practice

Breast cancer is one of the most common cancers among women. Screening behavior rates are low in the world (Noroozi, Jomand and Tahmasebi, 2010). The increased incidence of breast cancer especially among women in the developing areas where incidence were low has brought in the consideration and concern of health care providers. Since there is evidence that screening early for BC has favorable effect on mortality from BC (American Cancer Society, 2002; 2006; WHO, 2005; Adebamowo and Ajayi 2000), health planners and healthcare providers must identify and capitalize on encouraging factors and minimize deterring factors to optimize breast cancer screening practices among women. Its' implication to female nurses is that identifying and accounting for the factors that encourage or deter women in their

breast cancer screening practices will help to optimize screening programmes (Bener, Honein, Carter, Da'ar, Miller and Dunn, 2007).

A study among women in the United Arab Emirate discovered that their perceptions, knowledge, attitudes, and beliefs regarding cancer and screening, together with aspects of the healthcare system and social milieu, appeared to strongly influence the women's preventive practices. Some of these factors had an encouraging effect on the women's practices, and others had a deterring effect. The encouraging factors included feelings of susceptibility, high levels of knowledge in some women, attitudes and beliefs about personal responsibility for health, and a supportive social milieu. Deterring factors included anxiety and fear leading to denial; lack of knowledge about cancer and the screening program; fear, embarrassment, and mistrust of health care; and belief in predestination (Bener et al, 2007).

Similarly, in a review of literature study on psychosocial influences on breast cancer screening and treatment adherence carried out in a New York university, revealed that common cognitive, emotional and social network factors have influences on breast cancer screening and treatment adherence. In the same study non adherence to breast cancer screening and treatment guidelines can significantly and negatively impact the prospects for prevention and control of breast cancer (Carol, Nathan, Alfred, Dawn and Hershman, 2006).

Another study on barriers and facilitators of weight management among Arab women at risk of diabetes revealed that, a number of personal, social and physical environmental themes emerged as both barriers and enablers to performing a behaviour. Low motivation, lack of social support, competing demands, lack of culturally-sensitive exercise facilities and socio-cultural norms that restrict outdoor physical activities were the main barriers cited by the participants. On the other hand, social support, such as having other women to walk with, helped them stay physically active. Suggestions from the participants included enhancing social support for women, greater access to dietitians and nutrition information, and increasing

availability of culturally-sensitive exercise facilities (Ali, Baynouna and Bernson, 2010).

2.7. Empirical Contributions of Nurses in the Prevention of Breast Cancer

Breast Cancer is a feared disease, not only because it is life-threatening, but because it can affect a women's sense of sexuality and femininity and because the degree of success in treating this disease is influenced primarily by the stage at which intervention is introduced, secondary prevention (early detection) is the mainstay (Morrison, 1996).

British specialists believe there has been a sharp fall in breast cancer deaths since screening was introduced in the UK (Stoppard, 2000). International programmes on breast screening started long ago and all health professionals (including nurses) were noted to be sole role players (Redmond, 1997). Mass screening programmes for breast cancer were welcomed for health promotion purposes, they are not always attended by those women most in need (Faithfull, 1994). Foster and Constanza (1984) and Ludwick (1992) suggest that women who examine their breasts regularly and develop breast cancer generally have a five-year survival rate of approximately 75% of treatment for this disease, and are correlated with a better survival rate (Ludwick 1992).

Thus, early diagnosis and intervention are the cornerstones. Since breast awareness involves women becoming more familiar with their bodies. Nurses are in a prime position to make use of the many opportunities that present themselves in their everyday work to encourage and influence women to be more familiar with their breast. They have the potential to make an impact on women's health by encouraging women to become more involved in their own health and make use of the screening programmes available (Ludwick, 1992).

Research suggests that women who are advised about breast self-examination and breast awareness by a healthcare professional demonstrate greater knowledge and

confidence, and are more likely to practice this procedure routinely, than those who became aware from other sources (Morrison 1996).

Ludwick (1992) suggest that for a relatively large number of women, the primary source of information about breast issues is the healthcare professional. Nurses are in an excellent position to encourage and teach such secondary preventive health behaviours, as they comprise the largest single group of healthcare professionals that is chiefly composed of women and interact with both doctors and patients in a variety of healthcare settings. Morrison (1996) suggest that as nurses obtain health histories, identify individuals at risk, and provide education and information to meet individual patient needs, they are in a unique position to have a favourable impact on breast cancer screening and early detection.

In a health fair study organized by student nurses in a community in Israel about breast cancer education and prevention, when the students employed health marketing, educational and communication skills, the breast cancer booth located at the centre of the shopping centre served 200 women and 7 men with information on breast cancer prevention for 3 hours. The health fair design successfully met the course goals and in addition a large public was reached, much interest was displayed and a positive feedback was received (Woloski-Wruble, Alukobi-Kedushim and Musgrave, 1994).

A research carried out in West Virginia USA revealed that the nurse practitioner's global approach and advanced level of knowledge allow her to intervene at all stages of care delivery, and consequently give her a key role in preventing these ailments. She is able to evaluate a client's state of health and the quality of health care offered to the clientele. She can explain to women the risk factors for cancer, design programs for early detection and intervention, and follow up on clients' treatments.

2.8. Conceptual Framework

The conceptual framework for this research is based on the Health Belief Model (HBM).

2.8.1 Health Belief Model

The model was propounded by Kurt Lewin and further developed by Rosenstock in the 1950s. It attempts to explain preventive health behaviour, particularly the relationship of health behaviour to utilization of health services (Ross and Mico, 1980). It addresses an individual's perception of the threat posed by a health problem (susceptibility, severity), the benefits of avoiding the threat and factors influencing the decision to act (barriers, cues to action and self-efficacy). Simply put, the authors adduced that people's beliefs about whether or not they are susceptible to disease and their perception of the benefits of trying to avoid it influences their readiness to act.

Six main constructs influence people's decisions about whether to take action to prevent, screen for and control illness. In other words, people are ready to act if they:

- Believe they are susceptible to the condition (perceived susceptibility/vulnerability)
- Believe the condition has serious consequences (perceived severity)
- Believe taking action would reduce their susceptibility/vulnerability to the condition or its severity (perceived benefits)
- Believe costs of taking action (perceived barriers) are outweighed by the benefits
- Are exposed to factors that prompt action (e.g., health education) (cue to action)
- Are confident in their ability to successfully perform an action (self-efficacy).

It is important to note that personal susceptibility to a disease condition as well as perceived seriousness of the disease varies from person to person. The perception is also dependent on the level of knowledge about the health problem – the modifying factors which includes the demographic, socio psychological and structural variables. These modifying factors impinge on the level of knowledge and also awaken or

subdue threat to take recommended action. Modifying factors enable the individual to evaluate the outcome expected in relation to the constraints. Where the benefits clearly outweigh the constraints, the individual is motivated to take recommended action. Individuals must be able to recognize certain important cues that prompt him/her to take necessary action (Gbefwei, 2004; National Institutes of Health, 2005).

The Health Belief Model (HBM) was one of the first models to adapt theories from the behavioural sciences in order to examine health related problems. It is still one of the most widely recognized and used models in health behavior applications. This model was originally introduced by a group of psychologists in the 1950's to help explain why people would or would not use available preventive services, such as chest x-rays for tuberculosis screening and immunizations for influenza.

According to the HBM, a woman who perceives that she is susceptible to BC and that BC is a serious disease would be more likely to perform regular breast examinations. Similarly, a woman who perceives more benefits from and fewer barriers to BSE would be more likely to practice BSE. A woman who has an internal cue (body perception) or who has been exposed to an external cue (e.g., the positive influence of a health care provider or the media) would also more readily adopt BSE, as would a woman who wants to improve her health and who is confident of positive results.

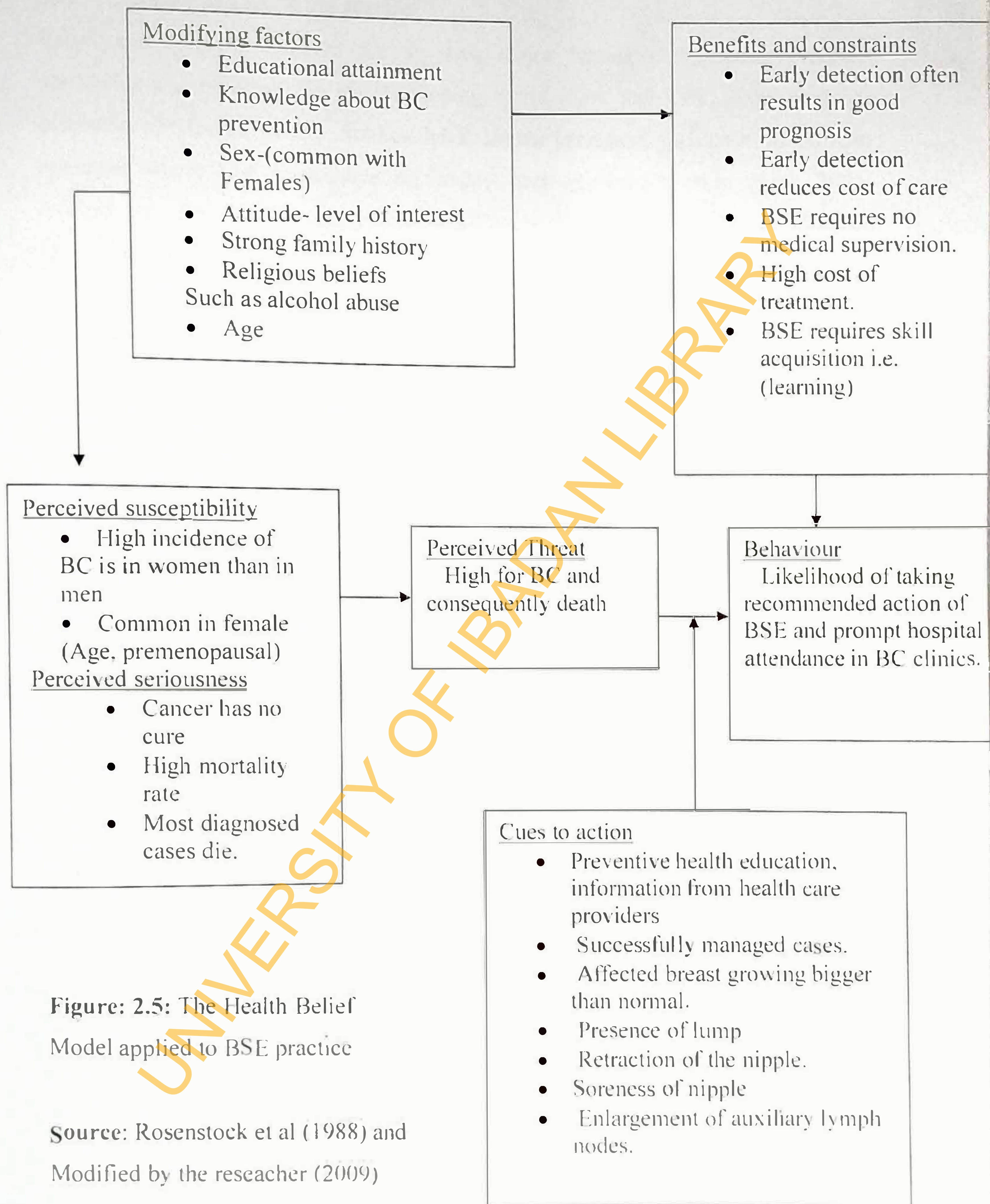


Figure: 2.5: The Health Belief Model applied to BSE practice

Source: Rosenstock et al (1988) and Modified by the reseacher (2009)

2.10. Summary of Literature Review

Breast and Cervical cancers are the two major female malignancies reported worldwide and especially in the developing world (Park and Park, 2002; National Institutes of Health, 2005). Studies have shown increased incidence in African countries where low rates have previously been reported (Parkin et al, 2005; Adebamowo and Ajayi, 2000; American Cancer Society, 2006; Okobia, Bunker, Okonofua and Osimie 2006).

Many studies have examined the role of health workers such as physicians and nurses in promoting breast cancer screening (Adenike, and Omuemu, 2009).

Following the Danish investigators who analyzed several international studies used by leading health associations to make their recommendations on mammography that it did little to detect BC and thus saves lives, **mammography remains the cornerstone of population-based breast cancer screening** (American Cancer Society, 2007).

However, in the developing areas like Nigeria, although mammography remains the best diagnostic tool in the detection of BC, it is not routinely performed because of cost, high technology equipment and expertise required (Balogun and Owoaje, 2004; Oluwatosin and Oladepo, 2006). Therefore then, in as much as we emphasize mammography, a monthly self exam is still a great way of becoming familiar with the texture of your own breasts, says Meissner a breast cancer prevention specialist.

"There may be insufficient evidence to recommend performing a self breast exam, but it doesn't mean that women shouldn't do it."

CHAPTER THREE

METHODOLOGY

This chapter deals with the design, scope of the study, description of the study area, study population and study variables. It also describes the methods and instrument of data collection and data analysis, the validity and reliability of research instrument and ethical considerations.

3.1 Study Design and scope

A cross-sectional descriptive study was used to assess knowledge and practice of BSE among female nurses at Adeoyo Maternity and Ring Road Specialist Hospitals in Ibadan, Oyo state, Nigeria.

3.2 Description of the Study Area

The study sites were Adeoyo Maternity and its extension, the Ring Road Specialist hospital in Ibadan, Oyo State Nigeria.

Adeoyo Hospital

Adeoyo Maternity hospital was established in 1927 as a general hospital by the then colonial administration to serve the public. It is therefore the oldest health institution in the South-west geo-political zone. Since then, the hospital has metamorphosed into many facets such as State Hospital in 1978, full pledged Maternity Hospital in 1987 and finally into a Maternity Teaching Hospital in 2008. Adeoyo Maternity served as a foundation stone for many renowned teaching hospitals in the South-west geo-political zone of Nigeria. These include the University College Hospital (UCH) Ibadan, Obafemi Awolowo University Teaching Hospital (OAUTH) and Lagos University Teaching Hospital (LUTH).

The citing of Adeoyo Maternity in the heart of Ibadan municipality made it to witness a tremendous influx of patients. Adeoyo Maternity Teaching Hospital is a two hundred and fifty (250) bedded hospital and consist of the following Units or

Departments: Obstetric and Gynecology, Pediatrics, Administrative, Nursing. Medical laboratory, Pharmacy, Physiotherapy, Accounts, Radiology, Catering, Maintenance, Stores, Transport unit, Modern communication system, Field/Gardening and Security units. Under the Otunba Dr. Christopher Adebayo Alao Akala's administration, the hospital had a major renovation and the following departments were added; Special Care Baby Unit (SCBU), Blood bank, three Lying-in wards, Children out-patient department (COPD), Immunization Clinic, and Antenatal Clinic. Also added is the Life Saving Scheme (LSS), a training programme for the reduction of maternal and infant mortality rates in South-west of Nigeria, funded by United Nations Children Fund (UNICEF) and World Health Organization (WHO).

Ring Road State Hospital

The Ring Road Specialist Hospital Ibadan was commissioned on the 23rd of March, 1971 as an extension of the then Adeoyo State Hospital. It was established to compliment the inadequate facilities and services witnessed then and to also serve as a secondary health institution. It comprises of sixteen functional units: Obstetric and Gynecology, Maxillofacial, Medical out-patient (MOP), Surgical out-patient (SOP), Special Clinic, Immunization, Ear, Nose and Throat (ENT), Psychiatry, Pharmacy, Laboratory, Plastic Surgery, Radiotherapy, Theatre, Casualty, Physiotherapy, Medical Records, Sickle cell unit, Kitchen, Laundry, Administrative and Accounts units. There are 13 wards; Theatre (1), Laboratory (1) and Clinic outlets which run several sessions (4). The hospital has 169 female nurses out of 177 nurses, among other person.

3.3 Study Variables

The Health Belief Model (Rosenstock, 1974) was used as the conceptual frame work for understanding women's willingness to undertake the recommended preventive health behavior of BSE for BC prevention.

The independent variables explored in the study were:

1. The socio-demographic characteristics of age, marital status, educational attainment, religion, rank/position in the job, female parity, and duration of breast feeding and history of BC in the family.
2. Knowledge of BC and BSE.

The dependent variables were:

1. Practice of BSE.
2. Women's intention to practice BSE.
3. The female nurse's perceived vulnerability of BC.

3.4 Study Population

The study population consisted of all female Nurses, who worked in Adeoyo Maternity and Ring Road Specialist Hospitals Ibadan from May to July, 2009 when the study was conducted. The wards/clinic settings where the nurses worked were used as the basis for recruitment of the study participants. Adeoyo Maternity and Ring Road Specialist hospitals consisted of twenty and fifteen ward/clinic settings respectively.

3.5 Recruitment of study participants

The study was conducted on all accessible female nurses at the Adeoyo and Ring Road health institutions. The participants were accessed by the use of the nurses' weekly duty roaster in all the ward/clinic settings of the existing departments of the hospitals of study.

3.6 Sample size and Sampling Procedure

The numbers of female nurses in Adeoyo Maternity and Ring Road hospitals during the study were 211 and 169 respectively giving a total of 380. .

All the female nurses of varying ranks and educational levels (Nursing Officers, Senior Nursing Officers/Superintendents, Principal Nursing Officers, Assistant Chief and Chief Nursing Officers, Registered Nurse/Midwives, Nurses with bachelor's degrees in Health Education and Psychology and bachelors degrees in Nursing) were recruited for the study see table below.

Table 3:1 Frequency of Respondents' and their Professional Ranks

Current Rank	Name of Health Facility		Total
	Adeoyo Maternity Teaching Hospital	Ring Road Specialist Hospital	
Chief Nursing Officer/Superintendent	61	68	129
Assistant Chief Nursing Officer/Superintendent	25	17	42
Principal Nursing Officer/Superintendent	13	11	24
Senior Nursing Officer/Superintendent	54	42	96
Nursing Officer 1 & 2	58	31	81
Total	211	169	380

3.7 Instrument for Data Collection

Two instruments were used to collect data for the study.

The first is a self administered semi-structured questionnaire consisting of closed ended and open ended questions. The questionnaire contained 50 items laid out in four sections A-D. The first section generated information on the demographic variables; the second section accessed respondents' knowledge about BC and breast self-examination; the third section explored on their practice of breast self-examination; while the fourth section accessed information about their perceived vulnerability to BC. The second is an adapted American Cancer Society BSE checklist.

It is a nine point scale check list which ascertained the skills of BSE among the respondents. Before the pre-testing of the instrument, recruitment and training of research assistant was carried out for one day to ensure clarity, understanding and consistency in interpretation of the variable items. The training focused on the objectives and importance of the study, sampling process, how to secure respondents informed consent, how to observe and score the respondent while demonstrating BSE using a check list. The assistant participated in the pre-testing of the instrument in order to create opportunity to acquire the skills of scoring the performance of the respondent during BSE demonstration procedure.

3.8 Instruments Validity

Five (5) steps were taken to ensure high validity and reliability of the survey instruments.

First, content validity was achieved through review of literature to develop a pool of questions. Secondly, the draft questionnaire was subjected to face validation by colleagues. Thirdly the supervisor critically examined the questions several times and made necessary corrections. Fourthly a Public Health specialist in the Oncology Department of the University College Hospital, Ibadan, examined the instruments and made expertise corrections and finally the instruments were pre-tested among female nurses at the Jericho General Hospital in Ibadan, a comparable group with similar characteristics to ensure validity.

3.9 Instrument Reliability

The internal consistency of the questionnaire was further tested with Cronbachs' alpha coefficient analysis. This is a model of internal consistency based on the average inter-item correlation. When results show correlation coefficient greater than 0.5, they are said to be reliable. A correlation coefficient result of 0.62 was obtained using SPSS version 15.0.

3.10 Pre-Testing of Instruments

The respondents completed all the forty questionnaires which were 10% of the sample size giving a 100% return rate. For the demonstration of BSE, out of forty female nurses that participated in the study, twenty two (55.0%) willingly demonstrated BSE using their own breasts, six (15%) did BSE using the breast model provided and twelve (30%) refused to demonstrate BSE. The reason they gave for not demonstrating was being too busy.

The pre-test was conducted within the period of three days (25th -27th March, 2009) in Jericho General Hospital among female Nurses. The participants completed forty copies of the questionnaire and demonstrated how to carry out BSE using a provided breast model. The mean time taken to fill the questionnaire and demonstrate BSE was 19.4 ± 4.5 and 10.0 ± 1.2 respectively.

A post-field meeting was held with the research assistant to share experiences and observations, this later helped in the final design of the instruments. After the pre-testing exercise, the following revisions were made on the draft questions.

1. Question 19 which asked about the patterns of breast self-examination was not clear to the respondents. All of them wrote the positions used in BSE as the answer. The question was reframed as: mention the three techniques/ patterns used in palpating the breast while doing BSE.
2. Question 29 generated more than twenty different responses. It was also reframed as: did you perform BSE in the last one month? Instead of when did you perform BSE last?

3.11 Data Collection Procedure

The process for data collection began with an advocacy visits to both the Chief Consultants and Chief Nursing Officers (CNOs) of Adeoyo Maternity and Ring Road Specialist Hospitals after obtaining an approval from the Research Ethical Committee of the Ministry of Health, Oyo state.

The self-administered questionnaire and BSE demonstration were distributed by the researcher and a research assistant. Criteria for selecting the assistant were strongly based on level of education, previous experience in data collection and knowledge about scoring a check-list and the ability to observe a demonstration and score at the same time. Also, the unavailability of breast models informed the selection of only one research assistant.

Two days to the commencement of data collection, the researcher was introduced to all the heads of departments (HODs). During the process, the objectives of the research, the modality of data collection, the immediate benefit the participants would get from the research (by way of teaching the correct BSE procedure in each ward/clinic setting after each nurse had filled the questionnaire and demonstrated BSE) were explained to them. After which, the number of all female nurses in each ward/clinic was obtained and the weekly duty roster was cross-checked for confirmation. The letters of approval and introduction from the school were photocopied and circulated among all wards and clinics staff by the secretaries of the CNOs. The HODs in turn also circulated the photocopy of the approved letters in all the three shift duties and sent messages to the nurses on courses, annual and maternity leaves to indicate their willingness to or not to participate in the study. Those who consented were later asked to spare time and come to the ward/clinics on any working day within the six weeks of data collection.

The data collection was done in two phases.

Phase one: The respondents started by filling a questionnaire each.

Phase two: At the submission of the filled questionnaire, BSE was demonstrated.

The validated self administered questionnaires were counted, put in big envelopes and given to each ward/clinic' HOD according to the number of female nurses in the ward/clinic while the researcher kept the coded check-list. Before then the researcher together with the HODs assigned codes to each questionnaire and the check list so that all the nurses who consented could participate in the study. Thereafter, BSE was demonstrated and scored; each scored check-list was stapled with the appropriate

questionnaire after making sure that each item of the questionnaire had been responded to.

The process of data collection was throughout the wards/clinic for the period of six weeks. This contributed to the 100% return rate. However, 13 nurses on courses out of the 380 female nurses could not make out time to demonstrate BSE. The average times taken to complete a questionnaire and demonstrate BSE were 19.0 ± 1.5 and 10.0 ± 0.5 respectively.

3.13 Data Management and Analysis

The investigator sorted and cleaned up the data obtained via the questionnaire and the BSE check-list every day to ensure that each was properly filled and completed. A coding guide was developed to facilitate data entry. Each questionnaire was coded, entered and analyzed using the Statistical Package for Social Sciences (SPSS) version 15.0 software. The information obtained were presented in frequency tables and charts for better understanding while descriptive, Chi-square and Analysis of Variance (ANOVA) were used as statistic methods for analysis. For the statistical analysis, a p-value less than 0.05 were considered to be statistically significant.

Knowledge score of BC was calculated for each respondent using a 19-point knowledge scale. Each correct answer had a score of 1, and incorrect answer or undecided response had a score of 0 except for the questions about ways of preventing BC which had a score of 3 because three correct responses were given by the respondents. The scores were then summed up to give a composite knowledge score for each respondent. The higher the score, the higher the knowledge and vice versa. Using the 75th percentile, a score above 14 was categorized as a good knowledge score while a score from 10-13 was considered fair and scores below 10 was categorized as a poor knowledge score about BC.

Ethical considerations

The following ethical procedures were adopted in conducting the research:

1. First, approval was obtained from the Oyo State Ethical Research Committee
2. Secondly, approval was provided by the Head of Department, Health Promotion and Education, University of Ibadan.
3. Thirdly, informed consent was obtained from each female nurse after explaining to them the purpose of the study and their liberty to choose to participate or not in the research work.
4. Fourthly, confidentiality was maintained by ensuring that names of the participants were not written on the questionnaire to ensure anonymity and the data collected was kept in a secured place where public access was restricted.

3.14 Limitations of the study

The breast model was very difficult to get. There were only two available and these were obtained from the School of Midwifery, Gwagwalada and the Family planning unit of the University College Hospital, Ibadan. This therefore, restricted the number of research assistants recruited. Moving between the wards/clinics to make sure that every female nurse who consented participated in the study was very tedious on the investigator and her assistant, but for the willingness to learn the correct BSE skill observed among the nurses kept the tempo until every one of the female nurses who consented participated in the study.

CHAPTER FOUR

RESULTS

The results of the study are presented in this chapter. Distribution tables and graphs are used to present detailed results of the survey. Relevant statistical tests were used to test the hypothesis of the study formulated on knowledge, BSE practices and the female nurse's perception of vulnerability to BC. It consists of four sections which include:

- Socio-demographic characteristics
- Knowledge about BC and BSE
- Practice of BSE and BSE skill demonstration (perceived self efficacy)
- Perceived vulnerability to BC

4.1 Socio-demographic characteristics of the respondents

The ages of respondents ranged from 21 to 59 years with a mean age of 41.9 ± 8.6 years. Approximately 40.8% fell between 40 and 49 years age group. About eighty-eight percent of the respondents were married and the majority of the respondents were Christians (81.8%). Virtually all the respondents were Yoruba (97.9%). The highest educational qualification of the majority of the respondents was Registered Nurse/Midwife (89.5%) while few (8.2%) have bachelor degrees in Nursing. About 37% of the respondents had been practicing for between 25 to 35 years and 44.2% of the respondents worked in the Obstetric and Gynecology unit, followed by (39.7%) in the Medico-surgical unit and few (2.6%) in the Theatre unit of the health institutions (see detail on Table 4.1).

About 89.5% of the respondents had been pregnant at one time or the other while majority of the respondents (79.5%) has between one to four children. Those that breastfed their babies for at least one year were 44.7% and 43.4% breastfed for 13-24 months while 11.9% never breast fed their babies. About 85% of the respondents did not have relatives who had suffered from BC (Table 4.2).

Table 4.1 Socio-demographic characteristics of Respondents (N =380)

Variables	No.	%
Age (grouped) in years		
20-29	30	7.9
30-39	112	29.5
40-49	155	40.8
50 and above	83	21.8
Marital Status		
Single	36	9.5
Married	337	88.0
Separated	4	1.1
Widowed	3	0.8
Religion		
Christianity	311	81.8
Islam	69	18.2
Ethnicity		
Yoruba	372	97.9
Hausa	1	0.3
Igbo	4	1.1
Others**	3	0.8
Educational Qualification		
B.Sc./B.N.Sc. Nursing	31	8.2
RN/M	340	89.4
Others***	9	2.4
Work Experience		
1-12 years	133	35.0
13-24 years	106	27.9
25-35 years	141	37.1
Health institution		
Adeoyo maternity	211	55.6
Ring Road	169	44.4
Name of unit		
Obstetric. and Gynecology	168	44.2
Medico-surgical	151	39.7
Preventive section	34	8.9
Administration	17	4.5
Theatre	10	2.6

*Mean age = 41.9±8.6 years ** other ethnic group include Kalabari, Efik etc.

***other educational qualifications include B.Sc health education and B.Sc. psychology.

Table 4.2 Respondents' reproductive health history (N = 380)

Variables	No.	%
Ever been pregnant		
Yes	340	89.5
No	40	10.5
Number of children		
1-4	302	79.4
5 and above	36	9.5
Not applicable*	39	10.3
Not having any child	3	0.8
Duration of breastfeeding for last baby		
0-12 months	170	44.7
13-24 months	165	43.4
25 months and above	3	0.8
Not breast fed any child	42	11.1
Family history of BC		
Yes	59	15.5
No	321	84.5

Mean number of children= 2.7 ± 1.5 , Average duration breast fed last baby= 12.04 ± 7.8

*Not applicable refer to currently not married.

4.2 Knowledge about BC and Breast Self Examination

4.2.1 Knowledge about BC

Only 40.3% of the respondents mentioned correctly that BC is a malignant disease of the breast and 59.7% did not. Concerning ways of preventing BC, the correct responses stated were maintaining regular breast screening (55.1%), early detection and removal/treatment of breast lumps and other breast diseases (12.3%) and breastfeeding for a long duration (10.2%) (Table 4.3).

Few respondents (16.3%) identified nulliparity as the category of women more vulnerable to BC. Majority of the respondents (81.6%) identified that the age group of women commonly affected with BC is 40-69 years. (Table 4.4).

The respondents' knowledge of causes, signs and symptoms, risk factors and common methods for diagnosing BC are reported in mean scores. The over all mean score for BC knowledge was 11.7 ± 2.3 out of 19 points. The respondents mean knowledge score about causes of BC was 2.2 ± 0.9 , about early signs and symptoms of BC a mean knowledge score of 1.7 ± 0.8 was observed. The respondents' mean knowledge score about the risk factors associated with the development of BC was 1.3 ± 0.7 while their mean knowledge score about recommended methods for diagnosing BC was 2.4 ± 0.9 (Table 4.5).

Table 4.3 Knowledge about what BC is, and prevention of BC

Variable	No.	%
What is BC		
Malignant disease of the breast*	285	40.3
Abnormal growth in the breast	216	30.6
A painless tumour in the breast	189	26.7
Inflammation of the breast tissue	17	2.4
Total	707**	100.0
Ways of preventing BC		
Early identification of breast lump via		
Maintaining regular breast screening*	296	55.1
Early removal and treatment of breast problems*	66	12.3
Breast feeding and doing it for a long time*	55	10.2
Giving life to Christ	77	14.3
Avoid drinking alcohol*	43	8.0
Total	537**	100.0

* The correct responses

** Multiple responses

Table 4.4 Knowledge about categories and age group of women commonly affected by BC

Variable	No.	%
Categories of women mostly affected with BC		
Null- parity*	146	38.4
Multi parity	207	61.7
Women who breast fed their babies for a long time	27	7.1
Total	380	100.0
Age group commonly affected by BC		
20-39	62	16.3
40.-69*	310	81.6
>70	8	2.1
Total	380	100.0

= correct answer

Table 4.5 Respondents' mean knowledge score about causes, risk factors and common methods used for diagnosing BC (N. = 380)

Variables	Number	Mean	Standard deviation
Over all mean knowledge score about BC	380	11.7	2.3
Knowledge about causes of BC	380	2.2	0.9
Knowledge of signs and symptoms of BC	380	1.7	0.8
Knowledge on risk to BC	380	1.3	0.7
Knowledge on methods of diagnosing BC	380	2.4	0.9
Knowledge on prevention of BC	380	1.2	0.4

Knowledge score of BC was calculated for each respondent using a 19-point knowledge scale. Each correct answer had a score of 1, and incorrect answer or undecided response had a score of 0 except for the questions about ways of preventing BC which had a score of 3 because three correct responses were given by the respondents. The scores were then summed up to give a composite knowledge score for each respondent. The higher the score, the higher the knowledge and vice versa. Using the 75th percentile, a score above 14 was categorized as a good knowledge score while a score from 10-13 was considered fair and scores below 10 was categorized as a poor knowledge score about BC..

4.2.2 Comparison of BC mean knowledge score by demographic characteristics and location

The over all mean knowledge score about BC obtained by the respondents was 11.7 ± 2.3 , with a range of 18.0 ± 2.3 . Mean knowledge score by location for Adeoyo Maternity Hospital was 12.1 ± 2.1 and for Ring Road Specialist Hospital was 11.3 ± 2.4 . The respondents at the Adeoyo maternity hospital had the highest mean score. Their compared mean test by location was statistically significant ($p < 0.001$). The mean knowledge score by age group for the younger respondents (20-39 years) was 12.1 ± 2.3 and for the older respondents (40 and above) was 11.8 ± 2.3 . The compared BC mean test for knowledge score by age group was not significant ($p > 0.05$). BC mean knowledge by educational qualifications is as follows: B.Sc. Nursing (12.2 ± 1.4), Registered Nurse/Midwife (11.7 ± 2.3) and Others (B.Sc. Health Education and B.Sc. Psychology) was 11.7 ± 1.2 . Respondents with B.Sc. Nursing had the highest mean score. The compared mean test for BC knowledge score by educational qualification was not significant ($p > 0.05$). The mean BC knowledge score by marital status is as follows: Single (12.5 ± 2.4), Married (11.7 ± 2.2), Separated (10.5 ± 3.1) and Widowed (11.7 ± 0.6). The mean knowledge comparison test was not significant ($p > 0.05$). Comparison of BC mean knowledge score by the respondents' rank in the job (from highest to the least) revealed, CNO (11.7 ± 2.3), ACNO (11.9 ± 2.0), PNO (12.0 ± 2.3), SNO (11.7 ± 2.2) and NO 1&2 (11.7 ± 2.5). The respondents in the rank of PNO had the highest mean knowledge score but no

statistical significance was observed in the mean test comparison ($p>0.05$). (Table 4.6).

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Table 4:6 Mean knowledge score of BC by demographic characteristics

Variable	No.	Mean	SD	df	F ratio	P-value
Health facility						
Adeoyo hospital	211	12.1	2.1	1	1.961	0.001
Ring Road hospital	169	11.3	2.4			
Age in years						
Younger age (20-29 years)	142	12.1	2.3	1		0.051
Older age (40 and above years)	238	11.75	2.2			
Educational Qualification					.865	
Bsc. Nursing	31	12.2	1.4	2		0.455
RN/M	340	11.7	2.3			
Others (Bsc. HED)	9	11.7	1.2			
Marital status					1.200	
Married	337	11.7	2.2	2		0.150
Single	36	12.5	2.4			
Separated	4	10.5	3.1			
Widowed	3	11.7	0.6			
History of BC in the family					1.209	
Yes	59	12.5	2.2	1		0.004
No	321	11.6	2.2			
Duration of practice in years					1.543	
1-12	133	11.8	2.4	2		0.534
13-24	106	11.5	2.3			
25-35	141	11.8	2.1			
Current rank in the job					1.582	
NO 1&2	89	11.7	2.5	3		0.958
SNO	96	11.7	2.2			
PNO	24	12.0	2.3			
ACNO	42	11.7	2.0			
CNO	129	11.7	2.3			

4.2.3 Knowledge about breast self examination

Almost all (94.5%) of the respondents claimed they knew how to carry out BSE while 5.5% do not. Virtually all (99.7%) of those who did not know how to carry out BSE indicated interest to learn how to do so if given the opportunity. The remaining 0.3% had no interest in learning the procedure and no reason was given for not wanting to do so. Some of the respondents (57.4%) chose age group 20-29 years as the appropriate age group to start BSE. Almost all of the respondents (91.6%) chose lying down as the best position to adopt when carrying out BSE. (Table 4.7).

Many of the respondents (67.4%) knew how often BSE should be performed. The appropriate time to carry out BSE according to the respondents in the woman's reproductive age (44.5%) and the menopausal age (73.2%). Only 21.6% of the respondents knew the best current method to use when palpating the breast in BSE (Table 4.8).

The score for BSE was calculated for each respondent using a 10-point knowledge scale. Each correct answer had a score of 1, incorrect answer or a do not know responses were allocated a score of 0. The scores were then summed up to give a composite knowledge score for each respondent. The higher the score, the higher the knowledge and vice versa. Using the 75th percentile, a score of 7-10 was categorized as good score, 5-6 as a fair and 0-4 as poor BSE knowledge score. The overall mean knowledge score of respondents about BSE was 6.4 ± 1.3 which indicates fair/average knowledge.

Table 4.7 Knowledge about appropriate age group to start BSE and the best position for BSE

Variable	No.	%
Appropriate age group to start BSE		
10-19	116	30.5%
20-29*	218	57.4%
>30	46	12.1%
Total	380	100.0%
The recommended position to perform BSE		
Standing up	22	5.7%
Lying down*	348	91.6%
Sitting down	10	2.6%
Total	380	100.0%

* = correct answer

Table 4.8 Knowledge about how often and the appropriate time to perform BSE

Variable	Yes N %	No N %
Knowledge about how often to carry out BSE		
Always/daily	54 (14.2%)	325 (65.8%)
Once in a week	18 (4.7%)	362 (95.3%)
Once in a month*	256 (67.4%)	144 (32.6%)
Once in a year	4 (1.1%)	376 (98.9%)
Once in two year	43 (11.3%)	337 (88.7%)
Knowledge of the appropriate time to carry out BSE		
Six days before menses	73 (19.2%)	307 (80.8%)
Seven days from the beginning of menses/two-three days after menses*	278 (73.2%)	102 (26.8%)
At specific days of the month in a menopausal woman*	169 (44.5%)	211 (55.5%)

* Correct answer

4.2.4 BSE Mean knowledge score by some selected characteristics.

BSE mean knowledge score by age group is as follows: 20-29 years (6.5 ± 1.3), 30-39 years (6.4 ± 1.2), 40-49 years (6.5 ± 1.7) and >50 years (6.3 ± 1.4). The mean comparison test was statistically significant ($p < 0.05$). Respondents with RN/M had the highest mean score. The compared mean test by educational qualification was not significant (Table 4.9).

Respondents' BSE mean knowledge score by BSE practice for those of high BSE practice was 6.4 ± 1.3 and for those of low BSE practice was 6.5 ± 1.6 . Respondents with low BSE practice had the highest BSE knowledge mean score.

The respondents' BSE mean knowledge score by location for Adeoyo Maternity Hospital was 6.5 ± 1.3 and for Ring Road Specialist hospital was 6.4 ± 1.6 . Adeoyo Hospital had the highest mean knowledge score; however, the compared mean knowledge score by location was not significant.

Table 4.9 Respondent's BSE mean knowledge scores by age, location, intention to, ever performed and ever taught BSE. (N=380)

Variable	No	Mean score	Standard Deviation	df	F-ratio	P value
Age in years						
20-29	30	6.5	1.3	2	.748	0.010
30-39	112	6.4	1.2			
40-49	156	6.5	1.7			
Above 50	82	6.3	1.4			
Location						
Adeoyo hospital	211	6.5	1.3	1	12.04	0.463
Ring Road hospital	169	6.4	1.6			
Intention to perform BSE						
Yes	376	6.4	1.3	1	21.97	0.253
No	4	6.7	3.0			
Ever performed BSE						
Yes	355	6.4	1.3	1	1.34	0.323
No	25	6.7	2.8			
Ever taught clients BSE						
Yes	334	6.4	1.3	1	14.37	0.154
No	46	6.5	1.6			

4.3 Breast Self Examination practice and Breast Self-Examination skill demonstration

This section comprised of 10 questions and a 9-point checklist to ascertain BSE practice and BSE skill. It elicited information on whether female nurses in the health institutions studied carried out BSE and whether they performed it correctly or not. Each positive response directed towards regular BSE practice was allotted one mark score. The same was also applied to correct BSE skill demonstration, totaling 19 points. In order to take decision on the data collected, a 75th percentile scale was used to determined “high” and “low” practice. A score of 14-19 and 0-13 for BSE practice were considered as high and low respectively.

Majority of the respondents (95.9%) had ever performed BSE. Among those who had performed BSE, more than half (54.5%) did not do it in the month preceding the survey. Most of the respondents (84.7%) used the circular technique to palpate the breast and majority (91.8%) of the respondents who performed BSE did not identify any breast problems. Almost all (99.2%) of those who had performed BSE indicated interest in continuous examination of their breast. Virtually all of the respondents (90.5%) accepted that BSE contributes to early diagnosis of BC (Table 4.10).

Reasons given by the respondents who had never performed BSE and those who did not do it in the last one month included: no family history of BC (5.3%), lack of adequate skill (0.9%) and absence of breast problems (4.2%) (Tables 4.11)

Reasons for lack of intention to continue BSE practice were: too busy 50.0%, nonchalance/carelessness 25.0% and preference for other BC diagnosing methods (25.0%).

Majority (89.0%) of the respondents had enlightened their clients on how to perform BSE. Those taught were clients (94.4%) and students (3.6%) (Table 4.12).

The various reasons given by the few (11.0%) for not teaching BSE were: lack of adequate BSE skills (66.7%), doubt about efficacy of BSE (16.7%) and nobody requested for BSE (31.0%).

Table 4.10 Respondents BSE practices

Variable	No.	%
Ever performed BSE		
Yes	364	95.9
No	16	7.1
Total	380	100.0
Performed BSE in the last one month		
Yes	166	45.5
No	198	54.5
Total	364	100.0
Common methods of breast palpation you use when performing BSE		
Circular method	308	84.6
Vertical method	10	2.7
Both vertical and circular method	46	12.6
Total	364	100.0
Identified any breast problem		
Yes	30	8.2
No	334	91.8
Total	364	100.0
Intention to continue to perform BSE		
Yes	361	99.2
No	3	0.8
Total	364	100.0
Whether regular BSE detect BC early		
Yes	344	90.5
No	36	9.5
Total	380	100.0

*Respondents who had never performed BSE were excluded in some responses.

Table 4.11 Respondents' reasons for not performing BSE in the month preceding the survey.

Variable	No.	%
Reasons for not performing BSE		
No family history of BC	91	43.0
Lack of adequate BSE skills	2	0.9
Absence of breast problems now	74	35.0
Too busy	4	1.6
Doubt about the efficacy of BSE	4	1.6
Fear of being diagnosed with BC	35	16.5
Fear of stigmatization if diagnosed with BC	3	1.4
Total	213	100.0

Table 4.12 Respondents ever taught BSE and the category of persons taught

Variable	No.	%
Ever taught BSE		
Yes	338	89.0
No	42	11.1
Total	380	100.0
Category of persons you ever taught BSE		
Clients	957	94.4
Relations/Friends	20	2.0
Students	37	3.6
Total	1014	100.0

The relationship between those that ever performed BES and certain demographic characteristics revealed that majority (40.7%) of the respondents who ever performed BSE were those in the age group 40-49 years followed by 30-39 years (29.6%) with no significant relationship. The majority of the respondents who ever performed BSE based on their educational qualification was the basic RN/RM (82.8%) and Bsc. Nursing 8.0% and not significantly related. Among those with family history of BC, only (15.2%) ever performed BSE while 77.8% who have no history of BC ever performed BSE relationship not significant.(Table 4.13) .

Although majority (54.7%) of the respondents at the Adeoyo maternity indicated intention to continue to perform BSE more than those at the Ring Road specialist hospitals (44.2%), the association was not found significant. Association between marital status and intention to continue to perform BSE was not found significant even though majority of the respondents who were married (87.8%), all who were separated (1.1%) and single (9.4%) indicated intention to continue to perform BSE in the future. 88.4% of the respondents who were ever pregnant also indicated intention to continue to perform BSE with no significance in the association (Table 4.14).

Table 4.13 Relationship between Ever performed BSE by age group, educational levels, and family history of BC of the respondents

Variable	Ever performed BSE		Total N %	df	X ²	P value
	Yes N %	No N %				
Age group in years						
20-29	30 (8.0%)	0 (0.0%)	30 (8.0%)	3	3.03	0.39
30-39	103 (27.1%)	10 (2.6 %)	113 (29.6%)			
40-49	145 (38.2%)	10 (2.6%)	155 (40.7%)			
>50	77 (20.3%)	6 (1.6%)	83 (21.7%)			
Total	354 (93.2%)	26 (6.8%)	380 (100.0%)			
Educational Qualification						
B.Sc. Nursing	30 (8.0%)	1 (0.3%)	31 (8.3%)	2	1.44	0.49
RN/RM	315 (82.8%)	25 (6.5%)	340 (89.4%)			
Others B.Sc. (H.Ed.)	9 (2.3%)	0 (0.0%)	9 (2.3%)			
Total	354 (93.2%)	26 (6.8%)	380 (100.0%)			
Family history of BC						
Yes	58 (15.2%)	1 (0.3%)	59 (15.5%)	1	2.90	0.09
No	296 (77.8%)	25 (6.5%)	321 (84.5%)			
Total	354 (93.2%)	26 (6.8%)	380 (100.0%)			

Table 4.14 Association between intention to perform BSE by location, marital status, family history of BC and ever been pregnant

Variable	Intention to continue to practice BSE		Total	df	X ²	P value
	Yes N %	No N %				
Location of practice						
Adeoyo hospital	208 (54.7%)	3 (0.8%)	211 (55.5%)	1	0.89	0.35
Ring Road hospital	168 (44.2%)	1 (0.3%)	169 (44.5%)			
Total	376 (98.9%)	4 (1.1%)	380 (100.0%)			
Marital status						
Single	36 (9.4%)	0 (0.0%)	36 (9.4%)	3	0.39	0.31
Married	334 (87.8%)	3 (0.9%)	337 (88.6%)			
Separated	4 (1.1%)	0 (0.0%)	4 (1.1%)			
Widowed	3 (0.9%)	0 (0.0%)	3 (0.9%)			
Total	377 (98.9%)	3 (0.8%)	380 (100.0%)			
History of BC						
Yes	57 (15.0%)	2 (0.5%)	59 (15.5%)	1	0.021	0.05
No	319 (83.9%)	1 (0.3)	321 (84.5%)			
Total	376 (98.9%)	3 (0.8%)	380 (100.0%)			
Ever been pregnant						
Yes	336 (88.4%)	4 (1.1%)	340 (89.4%)	1	0.0025	0.79
No	40 (10.5%)	0 (0.0%)	40 (10.5%)			
Total	376 (98.9%)	4 (1.1%)	380 (100.0%)			

During BSE demonstration, the female nurses were observed and scored while palpating their own breasts or the breast model provided. BSE skill demonstration was used to ascertain the quality of BSE practice and their perceived self efficacy. Total scores obtained in BSE skill demonstration by the respondents were graded. A point each was allocated to the 9 steps of BSE skill adopted from the American Cancer Society BSE technique, totaling 9-point score. 75th percentile was used to grade the performance of the respondents as follows: 7-9 points score was considered as “good skill” and 0-6 points for poor BSE skill.

The over all mean BSE demonstration score was 5.8 ± 1.6 which is poor. Only 38.2% of the respondents demonstrated good BSE skill while 58.4% had poor BSE skill. A small percentage (3.4%) of the respondents did not demonstrate BSE. Of those with good BSE skill, only 4.1 % got all the steps correctly.

Table 4.15 Percentage of respondents who correctly demonstrated each step of BSE skill (N=367)

Procedure	Correct BSE Skill Demonstration	
	No	%
Places the model on a table and or stand strait/lie down to palpate the breast	314	(85.6%)
Stands in front of the mirror raises hands above the head, places hands on the hips and looks at the breast for changes of size, colour, shape, contour, dimpling and scaling.	82	(22.3%)
Places the hand of the breast to be palpated behind the head and uses left hand to palpate the right breast	312	(85.0%)
Uses the pad of the three middle fingers and palpate the beginning from the armpit.	310	(84.5%)
Does not raise the fingers from the breast while moving from one point to the other.	275	(74.3%)
Uses overlapping dime-size motion to feel round the breast tissue	275	(74.3%)
Feel round the breast either in a circular, vertical or dividing the breast into four quadrants.	72	(19.6%)
Slightly squeezes the nipple for any discharge	233	(63.5%)
Repeat the examination on the other breast using the same process	271	(73.8%)

In order to ascertain the perceived self efficacy of the respondents, a comparison was made between mean BSE skill and BSE performance. Those who had performed BSE had a mean BSE skill score of 5.8 ± 1.6 while those who had never done so had a mean BSE skill score of 2.5 ± 2.7 with statistical significance ($p < 0.05$) see details in table 4.17. The highest mean score (5.9 ± 1.9) for BSE skill was observed among those who performed BSE in the month preceding the survey while those who had not performed it in the previous month had a mean score of 5.7 ± 1.7 . The mean comparison test for BSE skill by performance was significant ($p < 0.05$). Mean BSE skill scores for those with intention to continue to perform BSE was 5.5 ± 1.9 while those who had no intention were 4.3 ± 3.4 . The respondents with intention had the highest mean score. The comparison was not significant ($p > 0.05$) Table 4.16.

The practice of BSE compared with location revealed that majority of nurses in both Adeoyo (53.0%) out 55.5% and Ring Road (40.2%) out 44.5% hospitals had ever performed BSE with no statistical significance in the reported performance in the respondents' place of work. More nurses in Ring road (20.7%) out of 44.5% than Adeoyo (23.6%) out of 55.5% had carried out BSE in the last one month. In the same vein, majority (99.4%) of the nurses, who have intention to continue to perform BSE were found more in Ring Road Specialist Hospital (44.2% out 44.5%) than in Adeoyo Maternity Hospital (54.7% out of 55.5%) with no statistically significant difference (Table 4.17).

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Table 4.16 BSE skill mean score by ever performed BSE, Percentage Performed BSE in the month preceding the survey and intention to continue to perform BSE.

Variable	Number	Mean	Standard Deviation	Total	df	F-ratio	P value
Ever performed BSE							
Yes	353	5.8	1.6	380	1	0.200	0.00
No	27	2.5	2.7				
Performed BSE in the month preceding the survey							
Yes	167	5.9	1.7	380	2	0.210	0.00
No	213	5.7	1.7				
Intention to continue to perform BSE							
Yes	376	5.5	1.9	380	1	1.230	0.18
No	4	4.3	3.4				

Table 4.17 BSE practice by location

Variable	Location		Total	df	X ²	P value
	Adeoyo hospital	Ring road hospital				
Ever preformed BSE						
Yes	201 (53.0%)	153 (40.2%)	354 (93.2%)	1	3.29	0.07
No	10 (4.7%)	16 (9.5%)	26 (6.8%)			
Total	211 (55.5%)	169 (44.5%)	380 (100.0%)			
Performed BSE in the last one month						
Yes	90 (23.6%)	79 (20.7%)	169 (44.5%)	1	0.64	.50
No	121 (31.8%)	90 (23.6%)	211 (55.5%)			
Total	211 (55.5%)	169 (44.5%)	380 (100.0)			
Intention to continue to perform BSE						
Yes	208 (54.7%)	168 (44.2%)	376 (98.9%)	1	0.62	0.16
No	3 (0.8%)	1 (0.3%)	4 (1.1%)			
Total	211 (55.5%)	169 (44.5%)	380 (100.0%)			

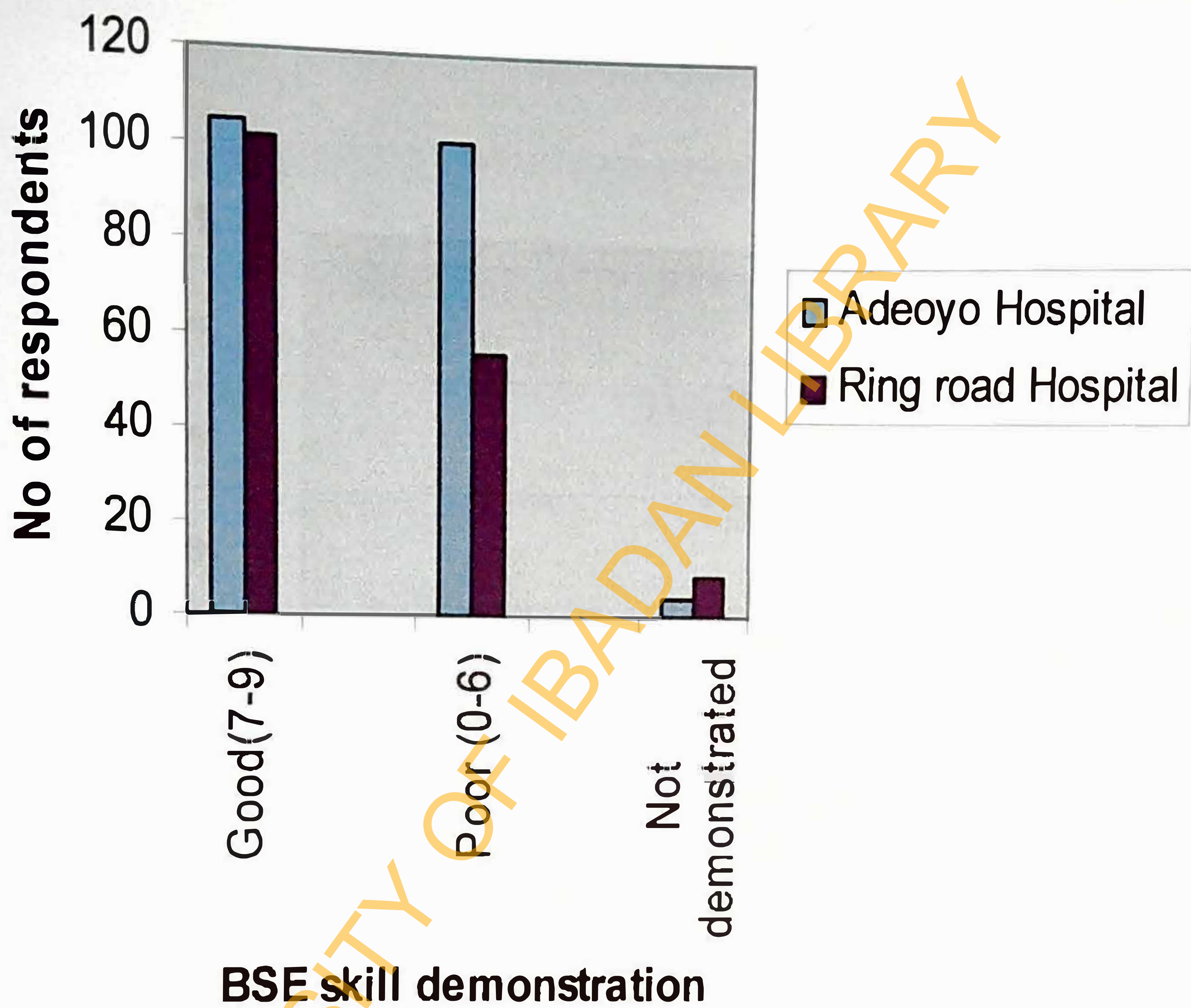


Figure 4.1 BSE skill demonstrations by location

of respondents

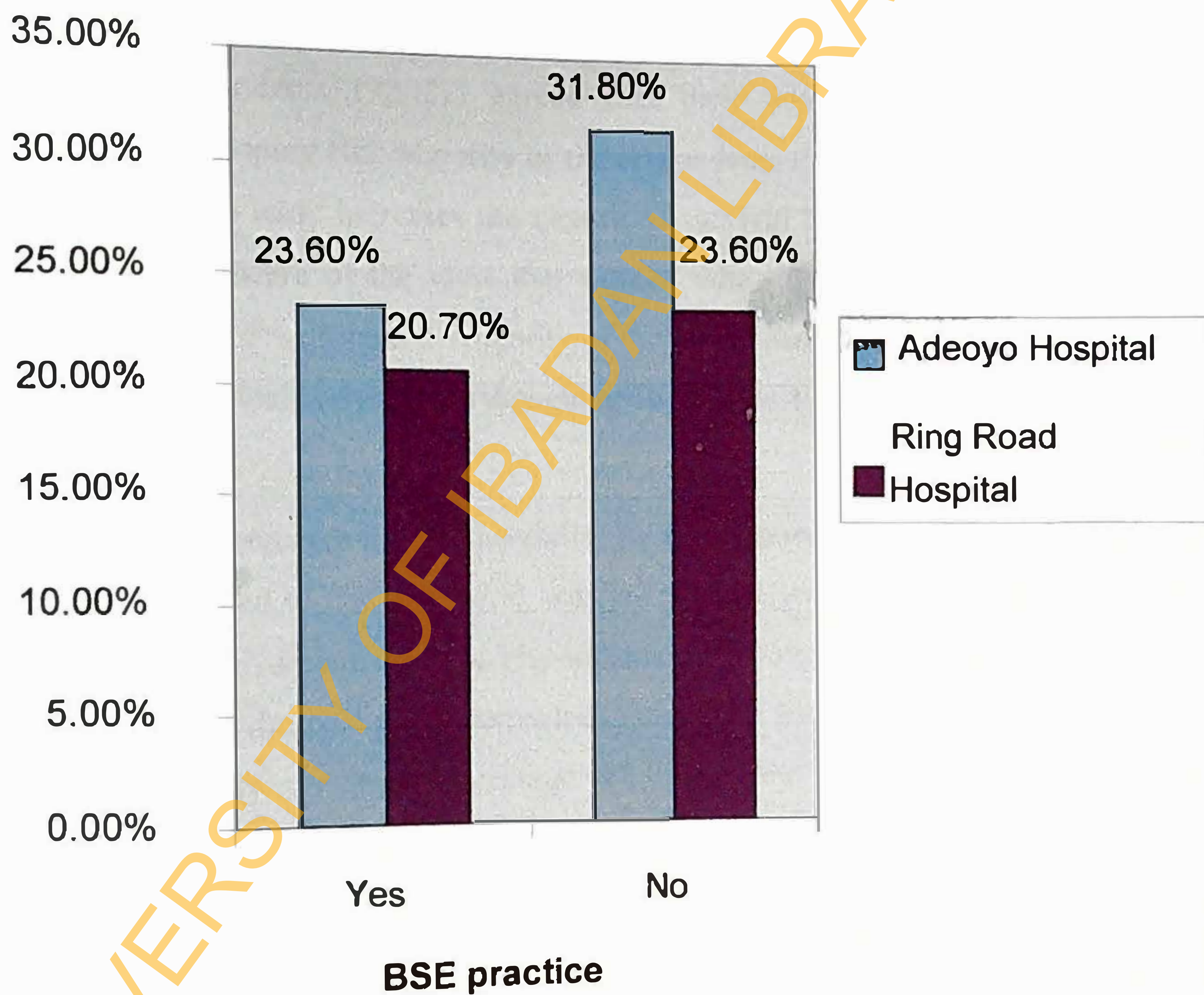


Figure 4.2 BSE Practice by location

4.4 Respondents' perception of vulnerability to BC

Only 18.4% of the respondents agreed that every woman is vulnerable to developing BC due to their feminine nature while 81.8% did not. Majority (87.9%) of the respondents were against the view that their involvements in night shift duty make them vulnerable to BC. More than half of the respondents (74.2%) were of the view that they can not develop BC because they are divinely protected while 25.8% disagreed. Virtually all of the respondents (98.9%) perceived themselves to be at risk of developing BC if any of their relatives has been diagnosed of the disease. A large percentage of the respondents (92.1%) agreed that their advancement in age predisposes them to developing BC. Majority of the respondents (94.7%) agreed that discovering a breast lump early increases the chance of survival from BC. Some of the respondents (65.5%) were of the view that women who are diagnosed of BC hardly survive it while 34.5% disagreed. Majority of the respondents (71.6%) were of the view that they always feel scared at the thought of BC (Table 4.18).

Total scores obtained in perception of vulnerability by the respondents were graded. A point each was allocated to each question, totaling 9-point score. 75th percentile was used to grade the performance of the respondents as follows: 7-9 points score was considered as those who perceived themselves vulnerable and 0-6 points for no perception of vulnerability. A large percentage (88.0%) of the respondents had a perception of vulnerability to BC while 12.0% had not perceived themselves vulnerable to BC (Figure 4.3).

Table 4.18 Respondents' perception of vulnerability to BC (No. = 380)

Statement	Yes N %	No N %	Total N %
I can develop BC because of my feminine nature.	70 (18.4%)	310 (81.8%)	380 (100.0%)
I can develop BC because of my involvement in running night shift duties.	46 (12.1%)	334 (87.9%)	380 (100.0%)
I can not develop BC because I am divinely protected.	282 (74.2%)	98 (25.8%)	380 (100.0%)
I am at risk of developing BC if any of my relative has been diagnosed with BC	376 (98.9%)	4 (1.1%)	380 (100.0%)
Whether or not I have the risk for BC, I can be diagnosed of it.	374 (98.4%)	6 (1.6%)	380 (100.0%)
My advancement in age predispose me to developing BC	350 (92.1%)	30 (7.9%)	380 (100.0%)
Discovering lump early increases the chance of survival from BC.	360 (94.7%)	20 (5.3%)	380 (100.0%)
Women who are diagnosed with BC hardly survive it.	249 (65.5%)	131 (34.5%)	380 (100.0%)
The thought of BC always scares me	272 (71.6%)	108 (28.4%)	380 (100.0%)

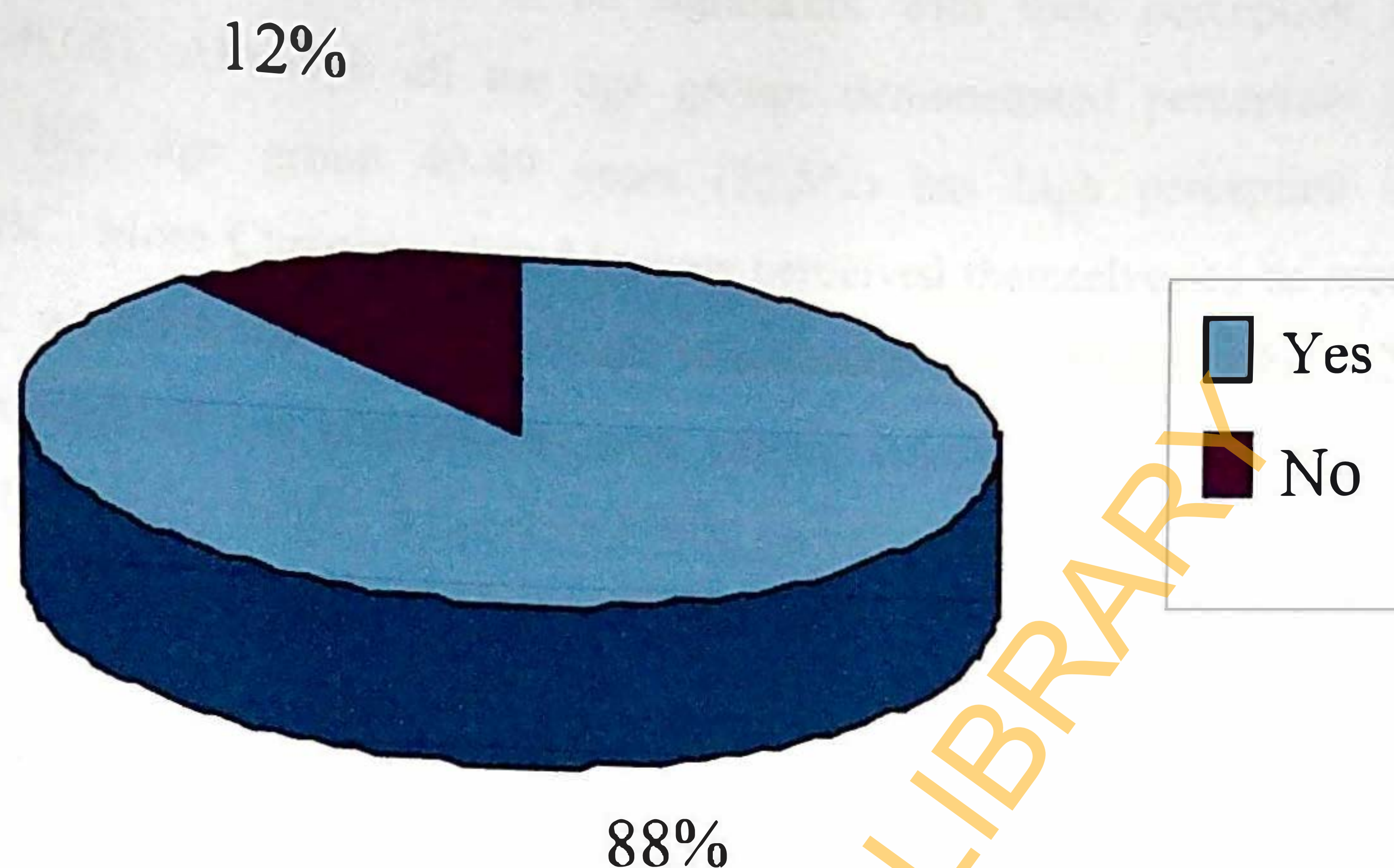


Figure 4.3 Respondents' perception of vulnerability

4.4.1 Relationship between perceptions of vulnerability to BC by some demographic characteristics

Age of respondents was found not to be significant with their perception of vulnerability ($p>0.05$). Although all the age groups demonstrated perception of vulnerability to BC, age group 40-49 years (35.8%) has high perception of vulnerability to BC. More Christians than Muslims perceived themselves to be more vulnerable to BC with a statistically significant relationship ($p<0.05$) (see table 4.21 for details). Although all the respondents with various educational levels showed perception of vulnerability to BC, those with RN/M perceived themselves to be more vulnerable to BC with no significant difference (Table 4.19).

Irrespective of the respondents' marital status, all of them perceived themselves vulnerable to BC (Table 4.20). The respondents' parity did not significantly relate with their perception of vulnerability to BC ($p>0.05$). Although all respondents perceived themselves to be vulnerable to BC, the respondents who had one to four children perceived themselves more vulnerable to BC (Table 4.21).

Table 4.19 Perception of vulnerability to BC by age, religion and educational qualification of respondents (N = 380)

Variable	Perception of Vulnerability		Total	df	X ²	P value
	Positive	Negative				
Age group						
20-29	28 (7.4%)	2 (0.5%)	30 (7.9%)	3	0.85	0.84
30-39	98 (25.8%)	14 (3.7%)	112 (29.5%)			
40-49	136 (35.8%)	19 (5.0%)	155 (40.8%)			
>50	73 (19.2%)	10 (2.6%)	83 (21.8%)			
Total	335 (88.2%)	45 (11.8%)	380 (100.0%)			
Religion						
Christianity	269 (70.8%)	42 (11.1%)	311 (81.9%)	1	4.54	0.03
Islam	66 (17.4%)	3 (0.7%)	69 (18.1%)			
Total	335 (88.2%)	45 (11.8%)	380 (100.0%)			
Educational Qualification						
B.Sc. Nursing	29 (7.6%)	2 (0.6%)	31 (8.2%)	2	0.95	0.62
RN/M	298 (78.4%)	42 (11.1%)	340 (89.5%)			
Others (B.Sc. H.Ed.)	8 (2.1%)	1 (0.3%)	9 (2.4%)			
Total	335 (88.2%)	45 (11.8%)	380 (100.1%)			

Table 4.20 Perception of vulnerability to BC by marital status and parity (N = 380)

Variable	Perception of Vulnerability		Total	df	X ²	P value
	Positive	Negative				
Marital status						
Single	34 (8.9%)	2 (0.6%)	36 (9.5%)	2	3.72	0.06
Married	296 (77.9%)	41 (10.8%)	337 (88.7%)			
Separated/Divorced/ Widowed	5 (1.3%)	2 (0.6%)	7 (1.9%)			
Total	335 (88.2%)	45 (11.8%)	380 (100.1%)			
Parity						
1-4	261 (68.7%)	41 (10.8%)	302 (79.5%)	2	4.55	0.10
5 and above	34 (8.9%)	1 (0.3%)	35 (9.2%)			
No children	40 (10.6%)	3 (0.7%)	43 (11.3%)			
Total	335 (88.2%)	45 (11.8%)	380 (100.0%)			

Table 4.21 Perception of vulnerability to BC by duration of breast feeding and family history of BC

Variable	Perception of Vulnerability		Total	df	X ²	P value
	Positive (7-9)	Negative (0-6)				
Duration of breast feeding				3	2.06	0.56
0-12 months	151 (39.7%)	19 (5.0%)	170 (44.7%)			
13-24 months	142 (37.4%)	23 (6.1%)	165 (43.5%)			
25 and above months	3 (0.7%)	0 (0.0%)	3 (0.7%)			
Not breast fed.	39 (10.4%)	3 (0.7%)	42 (11.1%)			
Total	335 (88.2%)	45 (11.8%)	380 (100.0%)			
Family History of BC				1	1.72	0.19
Yes	55 (14.5%)	4 (1.1%)	59 (15.6%)			
No	280 (73.7%)	41 (10.7%)	321 (84.4%)			
Total	335 (88.2%)	45 (11.8%)	380 (100.0%)			

Irrespective of the respondent's duration of breast feeding, all the respondents perceived themselves to be vulnerable to BC. However, those who breast fed their babies from 0 to 12 months perceived themselves more vulnerable to BC. However, there was no statistically significant relationship ($p>0.05$) (Table 4.21).

Although the respondents who have history of BC and those who do not perceived themselves to be vulnerable to BC, those who do not have history of BC perceived themselves more (73.7%) vulnerable to BC. The relationship was not statistically significant ($p>0.05$) (Table 4.21). Among the 99.2% of the respondents who have indicated intention to perform BSE in the future, only 18.1% perceived themselves vulnerable to BC (Table 4.22). The respondents who practiced nursing from 25-35 years (37.1%) perceived themselves more vulnerable to BC (28.4%) than those who practiced nursing for fewer years. A significant relationship was observed ($p<0.05$) (Table 4.22).

Table 4.22 Perception of vulnerability to BC by intention to practice BSE and duration of practice in year

Variable	Perceived vulnerability to BC		Total	X ²	df	P value
	Yes	No				
Intention to practice BSE						
Yes	69 (18.1%)	307 (80.8%)	376 (98.9%)	0.39	2	0.82
No	1 (0.3%)	3 (0.8%)	4 (1.1%)			
Total	70 (18.4%)	310 (81.6%)	380 (100.0%)			
Duration of practice in years						
1-12	97 (25.5%)	36 (9.5%)	133 (35.0%)	12.69	4	0.01
13-24	67 (17.6%)	39 (10.3%)	106 (27.9%)			
25-35	108 (28.4%)	33 (8.7%)	141 (37.1%)			
Total	272 (71.6%)	108 (28.4%)	380 (100.0%)			

4.5 Test of Hypotheses

1. Hypothesis One

There is no significant difference between BSE mean knowledge and educational qualification of the respondents.

BSE mean knowledge score of the respondents did not follow the trend above. The respondents with B.Sc. Health Education and B.Sc. Psychology had the highest BSE mean knowledge score (2.1 ± 0.6) than those with B.Sc. Nursing (1.6 ± 0.6) and RN/M (1.5 ± 0.7). The mean difference is statistically significant. The null hypothesis is therefore rejected

Table 4.23 BSE mean knowledge and educational qualification

Educational qualification	BSE mean knowledge score					
	Number	Mean	Standard Deviation	df	F-ratio	P- value
B.Sc. Nursing	31	1.6	.615	2	1.82	0.03
RN/M	340	1.5	.649			
Others(B.Sc. Health Education & B.Sc. Psychology)	9	2.1	.601			
Total	380	1.6	.650			

2. Hypothesis Two

There is no significant difference between the respondents' BC mean knowledge and their perception of vulnerability to BC

Although the respondents with good and poor BC knowledge had high ($1.9 \pm .29$ and $1.9 \pm .26$) mean perception of vulnerability to BC than those with average/fair BC knowledge ($1.8 \pm .26$), the mean difference is not statistically significant. The hypothesis is therefore accepted.

Table 4.24 BC mean knowledge and perception of vulnerability to BC

Knowledge of BC	Perception of vulnerability to BC					
	Number	Mean	Standard Deviation	df	F ratio	P value
Good knowledge	225	1.9	.292	2	2.00	0.08
Average/Fair knowledge	123	1.8	.385			
Poor knowledge	32	1.9	.258			
Total	380	1.8				

3. Hypothesis Three

There is no significant association between BSE skill demonstration and ever performed BSE.

Although majority of both respondents with good and poor BSE skill have ever performed BSE, those with poor BSE skill (59.2%) performed more than those who had good (36.6%) BSE skill. There is a strong significant association between BSE skill demonstration and ever performed BSE. The null hypothesis is therefore rejected.

Table 4.25 BSE skill demonstration and BSE practice

BSE skill demonstration	Ever performed BSE		Total	df	X ²	P value
	Yes	No				
Good skill	139 (36.6%)	3 (0.8%)	142 (37.4%)	1	2.34	0.00
Poor skill	225 (59.2%)	13 (3.4%)	238 (62.6%)			
Total	364 (95.8%)	16 (4.2%)	380 (100.0%)			

4. Hypothesis Four

There is no significant association between the respondents' family history of BC and BSE practice.

Although majority of both the nurses with BC history (10.0 %) and those without (45.5%) did not perform BSE in the last one month, more of those with family history of BC did not perform BSE in the last one month. The association is not significant ($p>0.05$). The null hypothesis is therefore accepted.

Table 4.26 Relationship between respondents' family history of BC by BSE practice

Family history of BC.	Performed BSE in the last one month		Total	df	X ²	P value
	Yes	No				
Yes	21 (5.4%)	38 (10.0%)	59 (15.4%)	1	2.23	0.15
No	148 (39.1%)	173 (45.5%)	321 (84.6%)			
Total	169 (44.5%)	211 (55.5%)	380 (100.0%)			

5. Hypothesis Five

There is no significant relationship between the respondents' perception of vulnerability to BC and their intentions to practice BSE.

Although majority (87.4%) of the respondents' who had intention to continue to perform BSE perceived vulnerability to BC than those who did not intend to perform BC (0.5%), the association between perception of vulnerability and the intention to practice BSE is not significant ($p>0.05$). The null hypothesis is therefore accepted.

Table 4.27 Relationship between respondents' perception of vulnerability to BC and Intention to practice BSE

Intention to practice breast self-examination	Perceived vulnerability to BC		Total	df	X ²	P value
	Yes	No				
Yes	332 (87.4%)	45 (11.8%)	377 (99.2%)	1	1.24	0.46
No	2 (0.5%)	1 (0.2%)	3 (0.8%)			
Total	334 (87.9%)	46 (12.1%)	380 (100.0%)			

CHAPTER FIVE

DISCUSSION

This study explored the knowledge and practice of Breast self-examination among female nurses at the Adeoyo Maternity and Ring Road Specialist hospitals. In this chapter, explanation is given regarding the results presented in the previous chapter. The demographic characteristics of the respondents, knowledge about BC and breast self-examination, the practice and intention to practice breast self-examination and the perception of vulnerability to BC was explored.

5.1 Socio-Demographic Characteristics

The ages of the respondents ranged from 21- 59 years with a mean age of 41.9 ± 8.6 years. The implication of this mean age is that the women are in the premenopausal and the menopausal age brackets and it is the age range that is crucial in the fight against BC. The study revealed that majority of the respondents' highest educational qualification was RN/M. Only few had bachelor's degrees in Nursing and Health Education respectively. Majority of the respondents were Christians. This finding agrees with a public health exchange report which highlighted Christianity as the predominant religion of the southern part of Nigeria (Kupari, 2005). Majority of the respondents were married, this was expected given that their mean age was 41.9 ± 8.6 and the mean duration of breast feeding was 12.04 ± 7.8 months.

5.2 Knowledge about BC and Breast Self Examination

In this study the respondents' overall mean knowledge about BC and BSE were 11.7 ± 2.3 out of 19 points and 6.4 ± 1.4 out of 10 points respectively. This implies an average knowledge of BC and BSE. However, in order to function as effective promoter of BC control through early detection, health workers must possess the relevant knowledge as well as appropriate attitude and belief concerning the disease and its early detection. This finding agrees with a similar study carried out among

Jordanian nurses which found low level of knowledge about BC (Ali Abu-Salim et al, 2007). A study in Lagos, Nigeria among female health workers including (Doctors, Nurses, Radiographers, Laboratory Scientists and Pharmacists) also revealed poor overall knowledge about risk factors for BC but their knowledge of mammography and BSE as diagnostic methods was very high (Adenike and Omuemu, 2009). Also, Franek, Nowak, Kampusta, and Labaj (2004) and Chong et al. (2004) reported poor knowledge of BC in a study among Polish nurses. Studies by Okobia, (2006) and Odusanya and Tayo, (2001) among health workers in Nigeria also, reported very low level of knowledge about symptoms of BC and screening methods. Also a study among Karachi nurse recorded low level of knowledge about BC (Ahmed et al 2006). This finding however, is different from the study among Nurses in general hospitals in Lagos, Nigeria where knowledge about symptoms, methods of diagnosis and self-breast examination was generally very good (Olumuyiwa, Odusanya, Olufemi and Tayo, 2001). Similarly Ahmed et al (2006), Adenike and Omuemu (2009) and Odusanya and Tayo (2001) pointed out that in spite of rigorous efforts towards improving medical education in the developed countries, it has been realized that healthcare professionals including nurses are not adequately educated about cancer risk factors, risk assessment and cancer prevention. Also on the contrary, high level of BC knowledge was found among nurses in Singapore (Seah and Tan, 200).

5.3 Practice of Breast Self Examination and Breast skill demonstration

Although it is encouraging that a large percentage of the respondents had ever performed BSE, only 45.5% did so in the month preceding the survey as recommended by physicians. This is in agreement with trend observed among health workers in Nigerian urban cities where there was poor knowledge of BC and the screening methods as well as low level of practice of BC screening (Adenike and Omuemu, 2009). This may also mean that the large majority of the respondents do not derive full benefit of the procedure. The lack of practice may also be as a result of the respondents' poor knowledge about BC and BSE. This is consistent with the study carried out in Turkey by Dimirkiran et al (2007) which found out that nurses practiced BSE more than teachers because they had more knowledge of BSE than

teachers. Also among Chinese nurses, Seah and Tan (2002) pointed that these nurses demonstrated high BSE practice because they had good BSE knowledge. On the contrary, Ali and Khali (1996) reported from a cross sectional study among female health care workers in Egypt that, more than 70% of subjects had knowledge regarding BSE and also had strong belief on its beneficial effects but only 6% of them performed BSE regularly. Also in accordance with this were the findings of an author in the US who observed that fewer than half of 300 nurses regularly performed BSE even though they were knowledgeable (American Cancer Society, 2002).

Furthermore, some differing findings in Nigeria and from other countries also revealed that nurses had poor attitude and low BSE (30%) practice although they were knowledgeable (Agboola, et al, 2009).

5.4 Respondents' intention of BSE performance

The study also found out that majority (99.2%) of the respondents indicated intention to continue to perform BSE. The possible explanation for this is likely because of their conviction that BSE contributes to early detection of BC and the belief that prevention is better than cure. Also, 89.0% of the respondents stated that they taught BSE to clients, students and relatives/friends in the course of their career. This implies that the respondents desire to practice BSE except for the limited knowledge and self efficacy in BSE and since they are health workers, they are in the best position to enlighten people on health issues. This assumption is in consonance with Odusanya and Tayo (2001) and Herman (2006) who said that knowledgeable healthcare professionals practice BSE and teach women about risks of BC more than healthcare providers who have limited levels of knowledge. Also, this agrees with a study that found a significant relationship between nurses' practice of BSE and the likelihood that they would teach BSE to their female clients (Ludwick, 1992).

Despite the low practice of BSE observed among the respondents studied, majority (90.5%) indicated that BSE contributes in early identification of breast problems including lumps. This was evident together by an indication of intention to practice

BSE by the overwhelming majority (98.9%) of the respondents and the desire to learn how to correctly perform BSE by the majority (95.2%) of the few (5.1%) respondents who initially stated they had not ever performed BSE because they do not know how to do it. The appreciated important role of BSE by these nurses could be attributable to be the driving force that made almost all of them to decide to palpate their own breast instead of the breast model provided. However the low BSE practice could be attributed to lack of confidence about BSE skills among the respondents. Also in support of this view is the finding of Scheier and Carver (1978), that says self-efficacy theory and behavioral self regulation theory suggests that the most important predictor of a highly specific behavior (such as BSE) is the individual's own knowledge and confidence in performing the behaviour.

5.5 Perception of Vulnerability of BC among Respondents

There are various misconceptions which exist among the respondents about BC. For example, majority were of the notion that being a woman does not automatically make them vulnerable to BC. However, it has been documented that every woman is at risk of developing the disease (American Cancer Society, 2009). Some also believed that they have divine protection and therefore they cannot develop BC. This is however true but it is better to be sure than sorry because heaven helps those who help themselves.

Another misconception is the belief that women who were diagnosed of BC hardly survive. This is contrary to the submission of Okobia et al (2006) which says that detection of BC in its early stages is amenable to almost complete cure. Some also find the thought of BC as scary, that is, they become afraid at the mention of the disease. This is not strange and could be as a result of the severity of the disease. However, the fear of the unknown should not become the barrier to taking steps towards prevention.

There are also various facts stated by the respondents. These facts include the following: it was stated that a woman is at risk of developing BC if any of her

relatives has been diagnosed of the disease. This is consistent with the report in the Daily Trust Newspaper by Anon (2009) that 5 to 10% of BC cases are passed from one generation to the other. This also corroborates with an established fact that individuals with a family history of the disease will have a higher risk (American Cancer Society, 2005; Suzan, 2006).

It was also accepted that an individual woman has the risk of developing BC whether or not she is diagnosed of the disease. This is true because there is no known cause of BC although several risk factors had been linked to it but the presence of these risk factors does not mean that a person will get the disease; some who have one or more of the risk factors never get the disease and most women who do get BC do not have any of the risk factors (American Cancer Society, 2009).

It was also stated that advancement in age predisposes an individual to developing BC. This is consistent with a study carried out by Olopade et al (2005) about African ancestry and BC; it was found that, BC hits women earlier and harder in their 40s. Similarly a study carried out by Adesunkanmi et al (2006) about the severity, outcomes and challenges of BC in Nigeria revealed that 66.7% of the women that came down with BC were premenopausal (35-39 years). According to American Cancer Society (2000), age is the single most important risk factor for BC; women are 10 times as likely to develop BC in their thirties and 40 times as likely in their forties. A recent review by American Cancer Society (2009) stressed that, as with many other diseases, the risk of getting BC goes up as one gets older.

It was stated that the discovery of breast lump early increases the chance of survival from BC. It has been documented that early detection plays a very important role in the prognosis of BC (American Cancer Society, 2009). It was also stated that running a night shift duty could predispose them developing BC. This is consistent with the submission of Spratt and Karen (2006) and Schernhammer et al (2001) that scientists revealed that women who routinely work night shifts duties have increased risk of 60% of developing BC due to the body production of melatonin (a hormone that

produces among other tasks, regulation of sex hormones) which peaks during night time /darkness.

5.6 Implications for Health Promotion and Education

There are three major components of health promotion as defined in the National Health Promotion and Education Policy and its strategic framework plan. These include Health Education, Service Improvement and Advocacy (EMOH, 2007). Information is directed to individuals, families and communities to influence their knowledge, attitudes and skills through the health education component; service improvement could be achieved through the improvement in quality and quantity of service availability, outreach and input supplies; and advocacy involves activities directed at policy makers to influence laws and policies concerning the direction of services and enforcement of laws.

The impact of information and communication on behaviour change cannot be over emphasized. Information, Education and Communication (IEC) materials can be designed to address the gaps between knowledge about BC and BSE. Continuing Health Education programmes should be targeted at all health professional generally on the importance of early detection in the prevention and treatment of BC. This can be implemented through training, seminars and workshops including mass media.

Service improvement can be achieved through the establishment of health education units in all levels of the health care delivery systems. There should be accessibility to all BC screening programmes and these services should be made affordable for proper utilization.

5.7 Conclusion

This study highlights the need for the female nurses in Adeoyo/Ring Road who are front line health professionals to undergo more training in the area of BC and breast self examination and to be informed that although BSE does not decrease mortality of BC, it enhances BC awareness which encourages women to take charge of their well-being in breast matters. BSE, though statistically not proven, is likely to allow smaller, clinically detectable cancers to be treated earlier than present. In this study, the knowledge of BC and breast self did not influence /affect their practice but by keeping them updated on BC and BSE, it will enable them to be effective patient educators on BC screening. The result of this study also suggests that for nurses and midwives, if more emphasis of BSE occurs in the work place and in undergraduate and postgraduate courses, teaching of BSE to clients may increase. Also, the provision of BSE educational programmes is necessary to increase the nurses' knowledge, confidence, performance, and teaching of BSE.

5.8 Recommendations

The following recommendations are made to address the various findings from this research study:

1. Emphasis on BC screening programmes in educational health institutions facilities, secondary and tertiary school campuses. These measures should include BSE, which is inexpensive, non-invasive, involves little time and physical energy.
2. Regular update courses on breast health maintenance practices are urgently recommended among nurses since they form the bulk of health workers who disseminate health information to the general public.
3. Equip the existing Health Education units in all levels of the health care delivery systems so that all educative programmes especially on BC and BSE can easily be accessed by health workers and the public.

4. Health educators should continue to collaborate with the non governmental organizations concerned with BC prevention to create more awareness among women in the churches, mosques and during social and religious gatherings such as marriage and naming ceremonies.
5. Participation of non-governmental and charitable organizations in creating awareness about BC that is currently going on in the country should be increased especially at the grass root levels so that health workers including nurses can easily be updated in their knowledge of BC and its' screening measures. The governments at all levels should partner with these bodies in providing more IEC material in local languages for the public to read and take them home for future reference.
6. Increased rates of regular BC screening behaviours, mass health protective programmes should be conducted and free breast screening services be provided as found in most developed world especially for female health workers (nurses) who carry out BC prevention and awareness teaching in the society.
7. Improvement on the existing health facilities by the government as well as establishment of cancer screening centers in all the states and local government areas.
8. Provision of BSE educational programs to increase the nurses' knowledge, confidence, performance, and teaching of BSE. Emphasis should be placed on BSE in the work place and in undergraduate and postgraduate courses. so that teaching of BSE to clients may increase and become more effective.

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APPENDIX 1

KNOWLEDGE AND PRACTICE OF BREAST SELF EXAMINATION AMONG FEMALE NURSES IN ADE-OYO MATERNITY AND RING ROAD STATE HOSPITAL IBADAN, OYO STATE

Dear Madam,

This questionnaire is designed to obtain information on the above subject matter in order to determine the appropriate intervention measures for the prevention of breast cancer among female nurses in Adeoyo maternity and Ring road State Hospital of Ibadan- North and South – West Local Government Areas of Oyo State. All the responses will be treated as confidential documents and will be used for academic purpose only so your name is not required. Please endeavor to answer all the questions.

QUESTIONNAIRE IDENTIFICATION NO.....

INSTRUCTIONS [Please give an appropriate answer by ticking (✓) where applicable]

SECTION A: SOCIO-DEMOGRAPHIC INFORMATION

1. Name of your health facility _____
2. In which Unit do you work now? _____
3. Age as at last birthday _____
4. Marital Status:
[i] Single [ii] Married [iii] Separated
[iv] Divorced [v] Widow
5. Religion:
[i] Christianity [ii] Islam [iv] Others, specify _____
6. Ethnic group
[i] Yoruba [ii] Hausa [iii] Igbo
[iv] Others specify _____
7. Highest Educational Qualification
[i] PhD Nursing [ii] Msc. Nursing [iii] Bsc. Nursing
[iv] RN/M [v] RN
[vi] Others specify _____
8. What is your current rank in the job? _____
9. Have you ever been pregnant [i] Yes [ii] No
[If No go to question 12]
10. How many children do you have [both alive and dead]? _____
11. How long did your breast feed your last baby? _____ months
- 12 Do you have any relative that has or is suffering from breast malignant disease?
[i] Yes [ii] No

14. How long have you been practicing as a nurse? _____

SECTION B: KNOWLEDGE ABOUT BREAST CANCER (BC) AND BIAST SELF EXAMINATION (BSE).

Knowledge about BC: [Please give the appropriate option only].

15. What is breast cancer? _____

16. Where did you get the information from? [i] School [ii] Media
[iii] Workshop/Seminar [vi] Others specify. _____

17. Which age groups of women are mostly affected with BC? [i] 20—39 years
[ii] 40---69 years [iii] 70 and above years

18. The categories of women mostly affected with BC are:
[i] Null Para [ii] Multi Para [iii] women that have breast fed for a long period

19. Have you ever seen female nurse(s) with breast cancer?
[i] Yes [ii] No

Answer the following statements as appropriate to you:

S/No	Statement	True	False	Don't know
20	Breast cancer can be caused by:			
	i. Having suffered from breast engorgement and mastitis			
	ii. No known cause.			
	iii. Having too many children.			
21	The following are some risk factors for breast cancer:			
	i. Females that run night shift duties			
	ii. Early menarche and late menopause.			
	iii. Females with history of breast cancer in their family			
22	The following are early sign & symptoms of breast cancer:			
	i. Painless breast lump			
	ii. Retraction of the nipple.			
	iii. Redness or scaling of the nipple			
23	Breast cancer can be diagnosed through the following:			
	i. breast self-examination			
	ii. Clinical breast examination.			
	iii. Mammography			

24. What ways can BC be prevented?

Knowledge about Breast Self Examination (BSE)

25. Do you know how to do BSE?

[i] Yes

[ii] No

[If yes continue with question 27]

26. If No, do you want to learn how to do BSE?

[i] Yes

[ii] No

If No, give your reasons:

27. What is the appropriate age to start BSE?

[i] 10---19 years

[ii] 20---29 years

[iii] 30 and above years.

28. How often should BSE be carried out?

29. Mention two common positions in which BSE can be performed.

Tick as appropriate:

30.	Breast self examination is best performed:	True	False	Don't know
	i. Six days before menses			
	ii. Seven days from the beginning of menses/two-three days after menses.			
	iii. At specific dates of the month in a woman at menopausal stage.			
31.	The best current method used in palpating the breast during BSE is:			
	i. Circular method.			
	ii. Vertical method.			
	iii. Wedge/dividing the breast into four quadrants			

SECTION C: INFORMATION ON PRACTICE OF BREAST SELF EXAMINATION: {Respond to these questions by ticking the option best applicable to you}

32. Have you ever performed breast self examination?

[i] Yes

[ii] No

(If No, go to question 38)

33. Did you perform BSE in the last one month?

[i] Yes

[ii] No

34. Which method did you employ when carrying out BSE the last time?

[i] Circular pattern
Vertical patterns

[ii] Vertical pattern

[iii] both Circular and

35. Have you identified any breast problem?

[i] Yes

[ii] No

36. Does regular BSE contributes in early detection of breast problems (BC)?

[i] Yes

[ii] No

37. Do you intend to continue to perform regular BSE?

[i] Yes

[ii] No

[If No state your reasons in 40)

38. Have you ever taught any one to perform BSE?

[i] Yes

[ii] No

[If No answer question 40]

39. Who have you taught to do so?

40. From the list below tick the most likely reason(s) why you do not do and do not intend to perform regular BSE

S/No	Statement	True	False
i	Fear of being diagnosed with BC		
ii	Absence of breast problems now		
iii	Doubt about the efficacy of BSE as a method of detecting BC		
iv	Too busy to do BSE		
v	Fear of stigmatization if diagnosed with BC		
vi	I don't have history of BC in my family		
vii	Lack of adequate skills to do BSE		
viii	Nonchalant		

41. Employing the common used pattern/technique (circular) of breast palpation, kindly demonstrate the process of breast examination on the breast model provided. (Refer to the check list provided and score the participant as she demonstrate Breast Examination on the model).

SECTION D: PERCEPTION OF VULNERABILITY TO BREAST CANCER.
 Tick the option you feel is most appropriate.

S/No	Statement	True	False	Don't know
42	I can develop BC because of my feminine nature.			
43	I can develop BC because of my involvement in running night shift duties.			
44				
45	I can not develop BC because I am divinely protected.			
46	I am at risk of developing BC if any of my relative has been diagnosed with BC			
47	Whether or not I have the risk for BC, I can be diagnosed of it.			
48	My advancement in age predispose me to developing BC			
49	Discovering lump early increases the chance of survival from BC.			
50	Women who are diagnosed with BC hardly survive it.			
	The thought of BC always scares me			

Thank

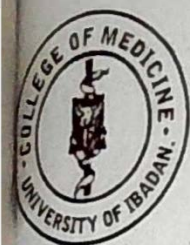
Employing the common used pattern (circular) of breast palpation, kindly demonstrate the process of breast examination on the breast model provided. (Refer to the check list provided and score the participant as she demonstrate Breast Examination on the model).

Breast examination by palpation check list

S/no	PROCEDURE DEMONSTRATION	CORRECT PERFORMANCE (tick Yes)	INCORRECT PERFORMANCE (tick No)
i	Places the model on a table and stand beside it's right side to demonstrate.		
ii	Mentions that the arm of the breast to be palpated be placed behind the head		
iii	Uses the finger pads of the 3 middle fingers press on the area at the armpit.		
iv	Does not raise fingers from the breast while moving from one point to the other.		
v	Use overlapping dime-sized circular motions of the finger pads to feel the breast tissue.		
vi	Feel around the breast in an up and down pattern starting at an imaginary line drawn straight down the side from the underarm and moving across the breast to the middle of the chest bone (sternum or breastbone), to the neck and the collar bone		
vii	Use 3 different levels of pressure to feel all the breast tissue. Light pressure is needed to feel the tissue closest to the skin; medium pressure to feel a little deeper; and firm pressure to feel the tissue closest to the chest and ribs		
viii	Slightly squeeze the nipple to check if there is discharge of fluid.		
ix	Repeat the exam on the other breast, using the finger pads of the other hand		

African Regional Health Education Centre

Department of Health Promotion & Education
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AG. HEAD: DR. I. O. OLASEHA

Our Ref: HPE/A.29

26th November, 2008

TO WHOM IT MAY CONCERN

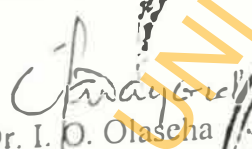
Letter of Introduction

Re: ADAMU, Suzie Jacob

This is to certify that the above named student is an MPH (Health Promotion) student in the Department of Health Promotion and Education, Faculty of Public Health, University of Ibadan.

Kindly accord her all necessary assistance she may require in connection with her research project titled "Knowledge and intention to practice Breast self-examination among female Nurses in Tertiary, Secondary and Primary Health Institutions in Ibadan North Local Government Area".

Thank you.


Dr. I. O. Olaseha
Ag. Head of Department



TELEGRAMS.....



TELEPHONE.....

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

Your Ref. No.

All communications should be addressed to
the Honourable Commissioner quoting

Our Ref. No. AD13/135/Vol. IV/59

Date: 5th March, 2009.

The Principal Investigator,
Department of Health Promotion & Education
Faculty of Public Health
College of Medicine
University of Ibadan.

Attention: Adamui Suzie Jacob

Re: Ethical Approval

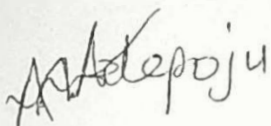
I am directed to refer to your letter requesting for ethical clearance on your research proposal titled "Knowledge and Practice of Breast Self Examination among Female Nurses in Adeoyo Maternity and Ring Road State Hospital of Ibadan North and South West Local Government Areas, Ibadan, Oyo State".

2. The Committee has noted that the corrections made were in line with her observations and comments in the first submission of the research study. I am therefore pleased to convey the approval of the Committee to you for the implementation of the Research proposal in Oyo State

3. I need to add, for your attention, that the Committee will closely monitor and follow up the conduct of the research study for compliance with the research proposals indicated in

the study. You are also to note that the Committee would like to have a copy of the results and findings of the study for use in formulating appropriate policies.

4. Wishing you all the best.



Mrs. V. A. Adepoju

Director (PR&S)

for Chairman of the Committee

5th March, 2009

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