

**KNOWLEDGE, ATTITUDE AND PRACTICE OF BREAST SELF
EXAMINATION AMONG FEMALE APPRENTICES IN EGBEDA
LOCAL GOVERNMENT AREA, NIGERIA**

BY

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DEDICATION

This piece is dedicated to God Almighty for being my source, my inspiration and my All in All. And also to my late Dad (R. O. Ilesanmi JP); God helped you to start this good work in my life but you were not granted the opportunity to complete the work, I will forever cherish you, my caring Dad.

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ABSTRACT

Breast Cancer (BC) is one of the leading causes of mortality worldwide and the third most commonly diagnosed cancer among women. Early detection through screening has been shown to improve the prognosis and survival among female presenting with BC. Few studies exist on knowledge, attitude and practice of Breast Self-Examination (BSE) among female apprentices in Nigeria, probably due to their level of education. This study was therefore designed to assess the knowledge, attitude and practice of BSE among female apprentices in Egbeda Local Government Area (ELGA), Oyo State.

Using a descriptive cross-sectional study design, a three-stage sampling technique was used to select 586 female apprentices from ELGA, who were interviewed using pre-tested semi-structured questionnaire. The questionnaire included a 32-point knowledge scale on BC and BSE, 11-point attitude and 13-point BSE practice scales. Knowledge score of ≤ 15 , >15 to 28 and >28 were rated as poor, fair and good knowledge respectively. Attitude score of ≤ 5 and >5 were rated as negative and positive attitude. Practice score of ≤ 7 and >7 were rated as unhealthy and healthy practice respectively. Four Focus Group Discussion (FGD) sessions were conducted to complement the quantitative data. Data from the survey were analysed using descriptive and Chi-square test statistics with level of significance set at 0.05 while qualitative data were analysed using thematic approach.

Respondents' mean age was 18.9 ± 2.5 years, 81.1% were Yoruba and 62.8% had secondary school education. Eighty-eight percent were aware of BC while 54.5% had never heard of BSE. The most mentioned source of information about BC (47.7%) and BSE (33.0%) was television. The overall mean knowledge score was 10.3 ± 4.2 and the proportion with poor, fair and good knowledge of BC and BSE were 83.1%, 16.6%, 0.3% respectively. Education was found to influence knowledge of BC and BSE as respondents with primary school education (94.1%) significantly had poor knowledge compared with those who had post-secondary education (64.4%). Respondents' mean attitudinal score was 4.9 ± 1.8 ; 22.4% had positive attitude towards BSE; 87.7% and 59.7% of those who were aware of BSE

indicated that BSE was necessary and preferred BSE as a means of early BC detection respectively. Education was found to significantly influence the respondents' attitude towards BSE as respondents with post-secondary school education (40.8%) significantly had positive attitude towards BSE compared with those who had primary school education (8.8%). Sixteen percent of the respondents had ever practised BSE. Respondents' mean practice score was 4.9 ± 2.2 ; 10.9% had good practice of BSE; only 5.5% of these practice BSE monthly. Respondents with post-secondary school education (33.3%) significantly had good practice of BSE compared to those with primary school education (5.9%). Focus group discussants unanimously recounted that BC can be prevented through regular examination of the breast and also gave lack of information as the major factor for not practicing BSE.

The respondents were aware of breast cancer, but breast self-examination knowledge, attitude and practices were poor. Breast cancer sensitizations, training and peer education are recommended to promote the practice of BSE for early detection and prevention of breast cancer among female apprentices in Egbeda Local Government.

Keywords: Female apprentices, Breast cancer knowledge, Breast self examination.

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CERTIFICATION

I certify that this work was carried out by Miss Ilesanmi Abimbola, in the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan, Nigeria.

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LIST OF ABBREVIATION

ACS	American Cancer Society
BC	Breast Cancer
BHGI	Breast Health Global Initiative
BSE	Breast Self Examination
CBE	Clinical Breast Examination
ELGA	Egbeda Local Government area
ERT	Estrogen Replacement Therapy
FGD	Focus Group Discussion
HBM	Health Belief Model
IARC	International Agency for Research on Cancer
UN	United Nations

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IMPETUS FOR THIS STUDY

Breast self-examination (BSE) is a screening method used in an attempt to detect breast lumps early. It involves the woman herself looking and feeling each breast for possible lumps, distortions or swelling (that might lead to breast cancer). Sometimes after my second semester examination, I had the opportunity to listen to the conversation of some female apprentices while making my hair at the hair dressing salon.

“My friend, help me o! While I was having my bath this morning, I discovered that a particular side of it was very hard and I’m really worried about it”, said one of the apprentices in the shop.

“Ahw! Somuroro ni! (Breast hardening)” replied another female apprentice in Yoruba language. *“I often feel something like that in my breast as well. It will go! Don’t worry”.*

This got me thinking, “Somuroro”! When it could be a dangerous (possibly cancerous) lump! Then I decided to join the conversation to find out what they know. During our discussion, I discovered that they knew little or nothing about Breast Self Examination. The lady who complained about her breast told me she discovered the hardening when she was bathing her breasts. I then made the effort to educate them about the BSE, its importance and how it can help detect Breast Cancer early. I also demonstrated how Breast Self Examination is properly done to them. Later that evening, my thoughts went to the conversation I had with the female hair dressing apprentices. Then I said to myself, there might just be many more female apprentices out there who have little or no knowledge about Breast Self Examination! Out of curiosity, I went to my tailor’s shop later that week and I stylishly engaged her (Boss) and the female apprentices in her shop in a discussion on reproductive health, then brought up BSE. I was not surprised to find out that they had no knowledge of it as well. There and then, I decided that finding out about female apprentices’ knowledge will be a good topic for my MPH research work. Literature review about this topic also proved that little or nothing had been done on knowledge, attitude and practice of BSE among female apprentices.

CHAPTER ONE

INTRODUCTION

Background to the study

Globally, breast cancer is the most common cancer among women, comprising 23% of the female cancers. It is also the leading cause of cancer-related deaths in low-resource countries (International Agency for Research on Cancer, 2010; Anderson, 2007). Although substantial improvement in breast cancer survival has been reported in High-income countries, the risk continues to increase and survival rates in middle-and low-income countries remain low (International Agency for Research on Cancer, 2010). It has been predicted that the largest increase in cancer incidence within the next 15 years worldwide is likely to be in the sub-Saharan Africa region, where breast cancer is reported as the commonest type of female malignancy in almost all national cancer registries (IARC, 2010; Rastogi, Hildesheim and Sinha, 2004). Worldwide as well as in Nigeria, breast cancer has been reported as the most common cancer in women and the second leading cause of death (Adebamowo and Adekunle, 2000; Parkin, Bray, Ferlay and Pisani, 2002). It has been observed that breast cancer has a poorer outcome among African-American women compared with the whites due to more advanced stage at presentation (Breast Cancer Facts and Figures, 2009) and this same trend has been reported among Nigerian women, as late presentation has been reported as the hallmark of breast cancer in this population (Okobia, Bunker, Okonofua and Osime, 2006). On the other hand, early onset of breast cancer has been observed among African women compared with Caucasians (Parkin *et al.*, 2002)

Studies have shown that most breast cancer cases can be cured if detected early and there are two major components of early detection of breast cancer: Education to promote early diagnosis and screening. Most of the total deaths from the disease are accounted for in the developing world. The low survival rates in less developed countries may be explained mainly by lack of early detection programs, lack of adequate diagnosis and treatment facilities which results in a high proportion of women presenting with late stage disease. It was estimated that the prevalence of breast cancer in women aged 15 years and above in sub-Saharan Africa was 23.5 per 100,000 women in 2008 (World Health Organization,

2012). Various risk factors for breast cancer have been reported, and these include; increasing age, Hormone Replacement Therapy (HRT), high dietary fat, excessive alcohol consumption, smoking and family history among others.

Breast cancers often present as palpable masses, inflammatory lesions, nipple secretions, or mammographic abnormalities. Although mammography remains the best diagnostic tool in the detection of breast cancer, it is not routinely performed in Nigeria because of cost, high technology equipment and expertise required. Mammograms skip most breast lump in the younger age group, and this is likely to happen in Nigeria where cases below the age of 30 have been reported (Anyanwu, 2000; Banjo, 2004; Okobia and Osime, 2001; Wu and Tu, 2003). Meanwhile, the role of breast self examination in the early diagnosis of breast cancer among younger population has been reported. A significant number of women present with advanced stages of the disease due to lack of information, knowledge and awareness of early detection measures (Ceber, Soyer, Ciceklioglu and Cimat, 2006).

Preventive behaviour is essential for reducing cancer mortality. Studies have shown that breast cancer prevention had significantly reduced the incidence of this case among Chinese American women (Wu *et al.*, 2003). Knowledge is a necessary predisposing factor for behavioural change. Knowledge also plays an important role in improvement of health seeking behaviour. Not only that knowledge might dramatically improve the attitude, it can consequently enhance screening practice. This study was therefore designed to assess BSE knowledge, attitude and practice among female apprentices in Egbeda local government.

Statement of the problem

Breast cancer is one of the commonest cancers in both the developed and developing world. Carcinoma of the breast is the second principal cause of cancer deaths among women in the world as well as Nigeria (Parkin, *et al.*, 2002; Adebamowo and Ajayi, 2000). The actual burden of breast cancer in Nigeria is unknown due to lack of adequate cancer statistics. However, the prevalence rate of breast cancer in Nigeria was 116 per 100,000 and 27,840 cases occurred in 1999 (Ferlay, Shin, Bray, Forman, Mathers and Parkin, 2008). Nigerian women usually present with advanced stages of the disease when

little or no benefit can be derived from the therapy. This is due to poor knowledge and attitude of health seeking behaviour towards breast cancer screening. Further reports show that majority of cases occurred in pre-menopausal women and the mean age of occurrence ranged between 43-50 years across regions in Nigeria and the youngest age recorded was 16 years from Lagos (Banjo, 2004).

Although mammography remains the best single diagnostic tool in the detection of breast cancer it is not routinely performed in Nigeria due to low level of awareness, ignorance, illiteracy, cost, high technology equipment and expertise required. False negative for mammography is higher in the younger age group, and this is likely to happen in Nigeria where cases below the age of 30 have been widely reported (Anyanwu, 2000; Wu and Yu, 2003; Banjo, 2004).

The predominant feature of late presentation of breast cancer had been reported over three decades in Nigeria (Okobia, Bunker, Okonofua and Osime, 2006). This is probably due to the fact that there is no established national screening program for breast cancer and lack of awareness on early detection measures of breast cancer such as clinical breast examination and breast self examination (Adebamowo *et al.*, 2000). In an environment where late presentation is predominant and where most breast cancers were detected accidentally by women themselves (Adebamowo *et al.*, 2000) there is an urgent need for awareness of breast cancer and its early detection measures especially breast self examination. Similarly, baseline reports on current level of knowledge would be vital to an effective awareness program, hence the need for studies assessing level of knowledge of breast self examination in the population.

Previous researches on knowledge, attitude and practice of BSE had focused on young undergraduate, (Iurhe, 2010), women in urban areas (Adebamowo *et al.*, 2000; Anyanwu, 2000), women in rural communities (Onyenwenyi, 2002), the educated and traders (Balogun and Owoaje, 2005). Limited or no attention has been focused on the female apprentices.

Justification for the study

According to Somkin (2002), BSE is useful for the following reasons: (a) it helps in detecting 10% of breast cancers that could not be detected with mammography and (b) it

is useful for younger women who are not generally recommended to undergo mammography screening because of the lack of evidence of its efficacy for detecting breast cancer for this age group. In addition, the American Cancer Society recommended that the monthly practice of BSE begins at age 20 in order for women to develop BSE as a monthly habit and to encourage women to take responsibility for their own health (Hailey, Lalor, Byrne and Starling, 1992).

Encouraging women to perform BSE at a young age, they would get in the habit of doing breast self-examination every month (American Cancer Society, 1991). As a result, women would be better able to recognize changes in their breasts as they aged. Breast self-examination is considered an important option for young women because they are not recommended to undergo mammography screening due to the density of their breast tissue (Somkin, 2002). In addition, women at younger ages have more aggressive breast cancers that are less responsive to treatment and they have a lower 5-year survival rate than women at an older age (American Cancer Society, 1999).

Breast self examination as one of the vital screening techniques for early detection of breast lumps, entails a simple procedure, non-invasive and requires little time to perform it. It can only be practised with the right attitude to sustain it and achieve the desired goal. Despite the fact that breast cancer is one of the few cancers which is able to be detected in its pre-clinical stage, BSE and Mammography are still only practised by a low proportion of the population in our country, and this anomaly formed the basis of this study. Focusing on this set of population will help in increasing the knowledge of this population and it is hoped that it will encourage the practice of BSE as a way of preventing and or reducing the occurrence of the breast cancer.

Research questions

The following questions were answered during the course of this study:

1. What is the level of knowledge of female apprentices on breast cancer and breast self examination?
2. What is the attitude of female apprentices toward breast self examination?
3. What is the prevalence of breast self examination practice among female apprentices in Egbeda local government?

4. What is the pattern of practices of breast self examination among female apprentices in Egbeda local government?
5. What are the factors that influence the practice of breast self examination among female apprentices in Egbeda local government?

Broad objective

The broad objective of this study was to investigate the knowledge, attitude, practice of breast self examination among female apprentices in Egbeda local government in Ibadan, Oyo State.

Specific objectives

The specific objectives of this study were:

1. To determine the knowledge of female apprentices on breast cancer and breast self examination.
2. To assess the attitude of female apprentices towards breast self examination.
3. To document the prevalence of breast self examination practices among female apprentices in Egbeda local government.
4. To document the pattern of breast self examination practice among female apprentices.
5. To determine the factors that influence the practice of breast self examination among the female apprentices in Egbeda local government.

Scope of study

This study was delimited to the female apprentices within the ages of 15 and 24 years (UN definition of youth) learning one trade or handicraft under a skilled personnel within Egbeda local government area in Ibadan, Oyo State,

Research hypotheses

H₀: There is no association between the respondents' socio-demographic characteristics and their knowledge on breast self examination.

H₀: There is no association between the respondents' demographic variables and their attitude towards breast self examination.

H₀: There is no association between the respondents' demographic variables and their practice of breast self examination.

Limitations for the study

The study was carried out in Egbeda local government area in Ibadan which is just one local government area out of eleven local government areas in Ibadan; hence the results cannot be generalized. Another major limitation encountered on the field was the unwilling and hesitant attitude displayed by some of the bosses in releasing the apprentices for the focus group discussion sessions as most of them were requesting for money before releasing their apprentices.

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CHAPTER TWO

LITERATURE REVIEW

History of breast cancer and breast self examination

Breast cancer may be the oldest disease known to women. The infamous disease can be traced back to 3,500 years ago in Egypt. According to Olson, 2002; Egyptians of the New Kingdom were the first to struggle with the disease. He noted the methods in which breast cancer was dealt with by Physicians and centers his analogue on the perceptions of Physicians regarding the disease during that era. Physicians in those days thought that the only way to alleviate breast cancer was by removing the entire breast. Nineteenth century physicians knew that severing the breast was a temporary treatment and that more than likely the breast tumours would return because of the unknown fundamental origin of breast cancer. Hippocrates, also known as father of medicine, believed that cancer was the result of an eruption of black bile. Giving the disease the “Karakinos” meaning crab, Hippocrates thought that cancer tumours resembled crabs because they appeared to have tentacles like that of crab legs, reaching out and grasping normal tissue making them malignant.

The earliest indication of breast self examination was found through American cancer Society. In the 1930's, cancer Activists encouraged the ideology of women to examine their own breast on a regular basis in search of suspicious lump. Self-breast examination, as it was referred to in the time past was thought of as awkward because it did not involve any technology and were often promoted as a specific and technical detection procedure. Because of lack of technical use, this procedure was reflected as more of a social change than a biomedical or a technical progress (Aronowitz, 2007). This phenomenon of self-breast examination contributed to the notion that individuals should bear the responsibility for detecting breast cancer. On the other hand, self-breast examination was also thought of as welcoming to clinicians because it kept the privacy of women by not having to involve others, especially male Physicians.

Epidemiology of breast cancer

Breast cancer is the most common cancer diagnosed in women and the most common cause of death from cancer worldwide. The most current estimates from the International Agency for Research on Cancer (IARC) for the global disease burden of breast cancer are for 2010, and in that year, the IARC estimates that there were approximately 1.15 million newly diagnosed cases and approximately 411,000 deaths. Incidence, mortality, and survival rates vary across the world's regions because of underlying differences in known risk factors, access to effective treatment and the influence of organized screening programs (Althuis, Dozier, Anderson, Devesa and Brinton, 2005). Incidence and mortality rates tend to be higher in high-resource countries and lower in low-resource countries (Parkin *et al.*, 2002). One feature common across the world's regions is the observation that in many countries, breast cancer incidence rates are increasing.

Based on current estimates of an average annual increase in incidence ranging from 0.5% to 3% per year; the number of new cases of invasive breast cancer estimated to be diagnosed in the United States for 2013 is 232,340 while 64,640 new cases of carcinoma in situ (earliest form of breast cancer) will be diagnosed (American Cancer Society, 2013). What is also clear is that there is an emerging disparity in long-term mortality trends, with mortality rising in parallel with incidence in some countries and declining in others despite rising incidence rates, a difference likely attributable to the combined effect of earlier detection and effective therapy. The growing burden of breast cancer in low-resource countries demands adaptive strategies that can improve on the too common pattern of disease presentation at a stage when prognosis is very poor. Although it is commonly argued that interventions focused on chronic conditions are a lower priority in low-resource settings, this reasoning may rest on the assumption that chronic disease interventions bear the same costs as common, high-tech interventions in higher-resource countries, and that they drain resources from other public health challenges, such as those focused on clean water, sanitation, and infectious diseases. However, it is possible that effective interventions focused on some cancers can be relatively low cost and that the implementation of simple interventions that could measurably reduce premature mortality in adults at productive ages should not be neglected until other health problems are solved (Anderson, Braun and Carlson, 2003; Pinotti, Barros, Hegg and Zeferino, 1993). With breast cancer incidence rates now increasing more rapidly in some low-resource regions, as well as some developed regions that have not yet offered screening to the population,

the inevitable outcome will be a continued increase in the mortality rate unless efforts are dedicated to diagnose breast cancer at a more favourable stage and ensure access to effective therapy.

Breast cancer mortality rates are higher in developing countries especially in Africa as a result of late detection and diagnosis. In Egypt, breast cancer is the most frequent diagnosed cancer among women which constitutes 25.5% of all the cancers (Ibrahim and Aref, 1982). Several factors are attributable which include genetics, cultural and social factors such as poverty, unequal access to prompt high quality treatment, lack of screening facilities, or lack of awareness and knowledge of the disease. Breast cancer ranks second in cancer incidence and is still the second principal cause of cancer mortality among women in Nigeria.

In a recent oncological review of cases in Jos, Nigeria, over an 8-year period, breast cancer was reported to account for 56.6% of all cancer diagnosis between 1995 to 2002. Among Nigerian women, the peak age of breast cancer presentation is about 10-15 years earlier than what is observed in Caucasian women, where it occurs between the ages of 35-45 years. Seventy percent of Nigerian women present with advanced staged disease while the five-year survival rate is less than 10% compared with over 70% in Western Europe and North America (American Cancer Society, 2003).

The relative frequencies of breast cancer among other female cancers, from Cancer Registries in Nigeria were 35.3% in Ibadan, 28.2% in Ife-Ijesha, 44.5% in Enugu, 17% in Eruwa, 37.5% in Lagos, 20.5% in Zaria and 29.8% in Calabar (Banjo, 2004). In all the centres, except Calabar and Eruwa, breast cancer rated first among other cancers. Further reports showed that majority of cases occurred in pre menopausal women, and the mean age of occurrence ranged between 43–50 years across the regions. The youngest age recorded was 16 years, from Lagos (Banjo, 2004). Adebamowo and Ajayi, 2000 also reported that peak age of incidence in Nigeria is 42.6 years, and that 12% of cases occurred before 30 years while postmenopausal women accounted for 20% of cases.

Risk factors for breast cancer

A risk factor is anything that increases your chance of getting a disease, For example smoking is a risk factor for cancers of the lung, mouth, larynx, bladder, kidney, and ischemic heart diseases. However, having risk factor does not mean than the disease is certain.

In an attempt to understand the prevalence of breast cancer, research focused on the identification of risk factors. Being a woman was found to be the single most important risk factor for breast cancer. Although men could get breast cancer, male breast cancer accounted for less than 1% of all breast cancer cases (American Cancer Society, 1999). Being over the age of 50 also increased a woman's risk for breast cancer. Also, women with a family history of breast cancer were found to be at greater risk for developing breast cancer as well. This risk was associated with a maternal history of breast cancer in a first-degree relative (mother, sister, or daughter) but was also thought to have been linked to a paternal history of breast cancer. The family history risk was higher in women diagnosed with breast cancer at an early age (American Cancer Society, 1999). Although family history was considered an important risk factor for breast cancer, only approximately 5 to 10% of breast cancer cases were believed to be due to family history of the disease. The identification of two breast cancer genes (BRCA 1 and BRCA 2) in 1994 helped to clarify the association between family history and breast cancer. Alterations in BRCA1 and BRCA2 were believed to cause some hereditary breast cancers. A personal history of breast cancer was also believed to increase the risk of developing breast cancer (American Cancer Society, 1999).

Another risk factor for breast cancer is related to women's reproductive functions and lifetime exposure to hormones. It was theorized that hormones such as estrogen played an important role in breast cancer risks by promoting cell division in breast tissue and by increasing the risk of mutations (American Cancer Society, 1999). Research suggested that women who had never been pregnant or were older than the age of 30 at first their first pregnancy; had fewer pregnancies; were younger at menarche; and were older at menopause were at a greater risk for breast cancer (Davis and Bradlow, 1995). There was also evidence to support a slight risk increase associated with the use of oral contraceptives and long-term Estrogen Replacement Therapy (ERT) by postmenopausal

women (American Cancer Society, 1999); however, studies examining ERT as an increased risk for breast cancer were inconclusive.

Researchers theorized about other possible associations with breast cancer. First, women with a history of benign breast disease were thought to be at a greater risk of developing breast cancer, especially if they had undergone a breast biopsy. Second, some studies demonstrated that there was a modest increase in breast cancer risk associated with fat and alcohol intake. Conversely, exercise was thought to reduce the risk of breast cancer by modifying the levels of hormones in breast tissue (American Cancer Society, 1999). The lack of certainty about the risks for breast cancer led some researchers to examine chemicals in the environment as a risk for breast cancer. These chemicals included pesticides in the environment such as DDT which was theorized to mimic the activity of estrogens. In some studies these chemicals were demonstrated to be tumour promoters (Wolff, Toniolo, Lee, Rivera and Dublin, 1993) while in others, they were not (Safe, 1995). Research into this area continued (American Cancer Society, 1999).

The aforementioned risk factors accounted for only 20-30% of all newly diagnosed cases of breast cancer (Davis and Bradlow., 1995). In fact, most women diagnosed with breast cancer had none of these known risk factors. According to Davis and Bradlow, “physicians have no idea why breast cancer arises in two out of three women with the disease”. Because it was not known how to prevent the development of breast cancer based on the identified risk factors, cancer advocacy and research organizations suggested that women should perform monthly breast self examination, routine mammography screening, obtain clinical breast examinations. These methods are believed to offer the best opportunity for survival by detecting breast cancer as early as possible. Breast cancer risk is also higher among women whose close blood relatives have this disease (breast cancer). Having one first-degree relative (mother, sister, or daughter) with breast cancer approximately doubles a woman's risk.

Other factors that increase breast cancer risks include a long menstrual history (menstrual periods that started early and/or ended late in life), obesity after menopause, recent use of oral contraceptives, postmenopausal hormone therapy, never had children or having the first child after age 30, ethnicity characteristics, exposure to radiation, or consumption of one or more alcoholic beverages per day.

Warning symptoms of Breast cancer

Early breast cancer is usually symptom less. But there are some symptoms develop as the cancer advances. Breast lump or breast mass is the main symptoms of the breast cancer. Lump is usually painless, firm to hard and usually with irregular borders. Every lump is not cancerous, sometimes some lumps or swelling in the breast tissue may be due to hormonal changes or benign (not harmful) in nature. Beside these some others symptoms are important, like:

- Lump or mass in the armpit
- A change in the size or shape of the breast
- Abnormal nipple discharge
 - Usually bloody or clear-to-yellow or green fluid
 - May look like pus (purulent)
- Change in the color or feel of the skin of the breast, nipple, or areola
 - Dimpled, puckered, or scaly
 - Retraction, "orange peel" appearance
 - Redness
 - Accentuated veins on breast surface
- Change in appearance or sensation of the nipple
 - Pulled in (retraction), enlargement, or itching
- Breast pain, enlargement, or discomfort on one side only
- Any breast lump, pain, tenderness, or other change in a man
- Symptoms of advanced disease are bone pain, weight loss, swelling of one arm and skin ulceration

(Source: Medline plus Medical Encyclopedia: Breast Cancer, 2007.)

Stages and survival of Breast cancer

Stages are the process physician use to assess the size and location of a patient's cancer. This information is required for the determining the optimal form of treatment. Like other cancer, breast cancer also stages from 0 to stage IV (Breast Health Statistics, 2007). Breast cancer is divided into 0 to stage IV according to the size and nature of spread (Metastasis)

- Stage 0: (*Carcinoma in Situ*) *Carcinoma in situ* is very early breast cancer. In this stage cancer has not invaded into the normal breast tissue and is contained in

either the breast duct (ductal carcinoma in situ) or the breast lobule (lobular carcinoma in situ). By definition, this type of cancer is not invasive and is not able to travel to the lymph nodes or other parts of the body.

- Stage 1: In this stage the tumour size is not more than 2 cm in diameter and has not spread to distant parts of the body.
- Stage II: In this stage the tumour is larger than the stage I that means 2-5 cm in diameter. Like stage I it indicates that it has not spread to distant parts of the body but it may or may not be spread to auxiliary lymph nodes.
- Stage II (a): Tumour size is >5 cm in diameter but has not spread to auxiliary lymph nodes
- Stage II (b): Tumour size is <2 cm in diameter but has spread to less than 4 auxiliary lymph nodes.
- Stage III: (Locally advance cancer): in this stage cancer spread to auxiliary lymph nodes.
- Stage III (a): Tumour size is >5 cm and spread to auxiliary lymph nodes.
- Stage III (b): Tumour size is <2 cm in diameter but the cancer has spread to auxiliary lymph nodes above the collar bones.
- Stage IV: Tumour spread to distant parts of the body like bones, liver and kidney.

(Source: National Cancer Institute, 2007).

The 5 years survival rate for breast cancer is calculated based on average. Each patient's individual tumours characteristics, state of health, genetics background etc impact the survival. Some other factors like level of stress, immune functions, will to alive and other immeasurable factors play a significant role in a patient survival (Breast Health Statistics, 2007).

Table 2.1: Stage and survival of breast cancer

Stage	5-years relative survival rate (%)
0	100
I	100
IIA	92
IIB	81
IIIA	67
IIIB	54
IV	20

(Source: American Cancer Society, 2004-2005).

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Breast cancer survival also decline after 5 years. Survival even after 10 years depends on stages. Early stage breast cancer is associated with high survival rates than late stage cancer (Breast health statistics, 2007).

Table 2.2: Overall survival rate of breast cancer

Overall survival rate	
After 5 years	88%
After 10 years	80%
After 15 years	71%
After 20 years	63%

(Source: American Cancer Society, 2005-2006).

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Treatment for breast cancer

Once diagnosed with breast cancer, women are offered various treatment options. Surgery is the primary treatment for breast cancer (American Cancer Society, 1999). Some women undergo a less invasive surgery called lumpectomy which involves only the removal of the tumour. Women with a more advanced stage of breast cancer undergo a modified mastectomy in which the breast tissue and nearby lymph nodes are removed, or a radical mastectomy in which the breast, as well as the muscle underlying the breast and the nearby lymph nodes are removed. Radiation therapy is also used in conjunction with lumpectomy and mastectomy. This therapy uses high energy rays to damage cancerous cells and to stop them from growing (National Cancer Institute, 2000).

Chemotherapy is another therapy use in conjunction with breast surgery. It is considered important in the treatment of breast cancer because it will destroy cancerous cells that are undetectable by X-ray. During chemotherapy, a combination of drugs is administered to destroy cancerous cells. These drugs appear to be more effective when they are combined (American Cancer Society, 1999). Lastly, hormone therapy is used to keep cancerous cells from getting the hormones they need to grow. This treatment includes either the use of drugs or the surgical removal of the ovaries to stop the body's production of estrogens (National Cancer Institute, 2000).

Global initiatives to combat breast cancer

In view of the breast cancer disease burden in developing countries and the fact that breast cancer is commonly diagnosed at late stages in low resource settings, there have been an increasing number of global health initiatives to address breast cancer. In 2002, a group of breast cancer experts from around the world, with assistance from the U.S. based research expert: “Susan G. Komen for the cure” and Fred Hutchison Cancer Research Centre helped co-found the Breast Health Global Initiative (BHGI), (Anderson *et al.*, 2003). The mission of BHGI is to “develop evidence based, economically feasible, and culturally appropriate guidelines for developing nations including Nigeria to improve breast health outcomes” (Anderson *et al.*, 2003). As part of BHGI, Anderson *et al.*, proposed a sequential action plan:

1. Promote the empowerment of women to obtain health care,
2. Develop infrastructure for the diagnosis and treatment of breast cancer,

3. Begin early detection efforts through breast cancer education and awareness on breast self examination and clinical breast examination,
4. When resources permit, expand early detection efforts to include mammographic screening among older women.

BHGI developed resource-specific and evidence-based guidelines for all aspects of breast cancer management.

In 2005, the U.S. Centres for Disease Control and Prevention (CDC), Susan G. Komen, the National Cancer Institute (NCI), and other collaborating Organizations co-sponsored the BHGI biennial meeting in Bethesda, Maryland. At the Bethesda meeting, the BHGI developed and defined four resource stratification levels: basic, limited, enhanced, and maximal for global breast health care (Anderson, Shyyan, Eniu, Smith, Yip and Bese, 2006). According to the BHGI “**basic-level**” is the lowest resource level or services necessary for any breast health care program to function and it may be applied in a single clinical interaction. “**Limited-level**” is the second lowest resource level or services that are intended to produce major improvements in health outcome such as increased survival and may include single or multiple interactions. “**Enhanced-level**” is the third lowest resource level or services that are optional but important. This level of resources is intended to produce more improvements in health outcomes and increase patients’ quality of life. The final level of resource stratification is “**maximal**”, which is the highest level of resources or services that may be used in some high resource countries. This resource level may be a lower priority to developing countries compared with basic, limited, and enhanced resource levels, respectively. This is because it requires the development and implementation of the first three resource levels for it to be functional. These resource stratification levels are designed to meet country-specific financial means and its allotted health care resources (Anderson et al., 2006). The stratification method assumes an incremental resource allocation. That is, a country with limited level of resources is assumed to have all of the resources recommended for the basic level of breast health care.

In 2007, the U.S. based “Susan G. Komen for the Cure” in collaboration with other Organizations such as National Cancer Institute and American Cancer Society co-sponsored the BHGI biennial meeting in Budapest, Hungary. The meeting focused on effective implementation and integration of the previously developed guidelines for breast

health and breast cancer control (Anderson *et al.*, 2003; Anderson *et al.*, 2006). The BHGI efforts are reasonably unique.

Other important initiatives that are complimentary to BHGI's efforts include on-going work on breast health awareness and control by some leading oncology societies in different parts of the world and the International Network for Cancer Treatment and Research (ASCO news and forum, 2007).

The U.S.-based "Susan G. Komen for the Cure" has provided more than \$5.5 million dollars in funding for international Organizations including American Cancer Society and Breast Cancer Association of Nigeria (BRECAN) for Community Education and Outreach programs and has established international affiliates in Puerto Rico, Italy, and Germany. The Organization's focus is on Community Organization, Education, Advocacy, and access to care, including palliative care.

In addition, the American Cancer Society (ACS) has an increasing number of international initiatives for cancer prevention and control, which has had several sessions each year since 2001 and reached over 535 Scholars in 85 countries including Nigeria. These and many more are efforts put together by international and local Organizations in combating breast cancer around the globe. The American Cancer Society is saving lives from breast cancer by helping people stay well by taking steps to reduce the risk of breast cancer or detect it early, when it is most treatable; helping people get well by guiding them through every step of the cancer experience; finding cures by funding and conducting groundbreaking research to discover breast cancer's causes and effective ways to treat and help cure it; and fighting back by working with legislators to pass laws that defeat cancer and rallying communities to join the fight.

In addition, an increasing number of countries have developed national plans for combating breast cancer, other cancers and other chronic diseases, including initiatives aimed at the primary prevention of non-communicable diseases such as breast cancer through the promotion of physical activity and proper diet (e.g., avoidance of excessive alcohol consumption).

The World Health Assembly passed a resolution on cancer prevention and control (WHA58.22) in May 2005 calling on member States to intensify action against cancer by developing and reinforcing cancer control programs. Countries have prioritized and acted on cancer prevention and control activities in different ways depending on the burden of the disease in the countries. For breast cancer, which is still a shameful secret in many developing countries, the first step some countries are taking to conquering the disease is understating how it works. Through the help of “Susan G. Komen for the Cure” and the WHO’s sponsored lectures and events to educate women and the public about breast cancer and encouraging them to speak out about the disease, breast cancer is now being discussed openly in more places than ever. For example, in Nigeria and even Egypt, religious leaders now speak out in favour of breast cancer awareness and screening, making it clear to husbands that their wives must be examined regularly. Further, in South Africa, there is an increase in mobile mammography units to help improve low level rates of screening mammography for breast cancer.

Other key developments include efforts to evaluate and further develop palliative care programs in developing countries (Callaway, Foley, De Lima, Connor, Dix and Lynch, 2007; Clark, Wright, Hunt and Lynch, 2007; W.H.O., 1990) and activities undertaken through the International Cancer Information Service Group (ICISG). This is a network of almost 50 cancer organizations from 30 countries including developing countries (e.g., Bangladesh, Brazil, India, Kenya, Malaysia, and Nigeria).

However, there are many infrastructural challenges affecting the process of developing, implementing, and maintaining effective and efficient cancer registries in developing countries. Such infrastructural challenges may include but are not limited to the following:

1. Under-developed transportation systems such as road and highway networks;
2. Unreliable electricity supply;
3. Unreliable communication systems such as telephone or mobile phone networks and internet services,
4. Lack of physical and organizational structures such as human and financial resources and hospital facilities to establish a functional cancer registry, and
5. Political instability which can prevent and disrupt routine data collection and follow-up of patients’ vital records.

Because of the infrastructural challenges, the ability for registries in the developing and under-developed countries to collect data and reach the population is often sub-optimal. Current global initiatives are making efforts to address these infrastructural challenges. For example, BHGI is collaborating with “Susan G. Komen for the Cure”, BRECAN and the Ghana Breast Cancer Alliance to develop and implement educational and training programs. This program provides educational outreach to inform the public that breast cancer is treatable, especially when identified at early stages through clinical breast examination, breast self examination and mammography.

National policy and roles of local NGOs on general cancer prevention and control

Issues addressing cancer first came up in 1960 where Nigerian government tried to curb cancer diseases with the establishment of Cancer Registries in the Department of Pathology of the University College Hospital (UCH), Ibadan. This effort was directed at recording cancer incidences for use by health planners and research purposes. WHO in 2006 explained that the whole continent of Africa is battling with primary diseases like Malaria, Polio, and HIV/AIDS with limited resources left for cancer information and management. According to WHEDA, Nigeria, 2005, there are only 6 laboratories in Nigeria and out of the estimated 4 million Nigerians requiring radiotherapy, only 15% have access to facilities. To buttress the health care delivery services, a committee was set up by the Federal Ministry of Health to draw a National Policy on Cancer Prevention and Control after the World Cancer Congress in 2006, with the theme “*bridging the gap and transforming knowledge into action*”.

The **vision** of this policy is to create a healthy nation that lives longer with optimal physical and mental health.

The **mission** is to contribute to reducing avoidable cancer-related morbidity and mortality through health promotion; provision of enabling environment; strengthening of health systems; provision of health resources; partnerships and empowerment of communities.

The **goal** of the prevention and control policy is to ensure that the burden of cancer is reduced to the barest minimum so as to render it of little public health importance and an obstacle to socio-economic development.

The **objectives** are to:

- Reduce the incidence and prevalence of various cancers

- Reduce exposure to the risk factors of all cancers
- Reduce morbidity associated with cancers
- Improve the overall quality of life in persons with cancers

The guiding principles that guide the development and implementation of cancer prevention and control policy include the following:

- Evidence-informed: Policy and interventions which have scientific and/or historical evidence of being productive will be given priority.
- Cost-effective: All things being equal, the most cost-effective interventions will be selected as these give value for money. Other considerations, such as side effects, social cost, cultural and political acceptability are all important criteria to consider in the evaluation of interventions.
- Primary Health Care approach
 - Culturally relevant: To the extent possible, interventions would respect the cultural sensibilities of the communities in which they will be implemented. For example, recommended fruits and vegetables will give priority to those that are available locally.
 - Gender sensitive: In line with international initiatives to draw attention to the vulnerability and impact of cancers on women and young ones (owing partly to their low socio-economic, legal and political status), cancer prevention and control policy will remain gender sensitive.
 - Reduced inequity: Besides being gender-responsive, cancer programmes will seek to reduce inequities between groups and geographical areas in the vulnerability and health outcomes of cancers and their risk factors.
 - Community-participation – The District Assembly, traditional authorities, opinion leaders and lay communities will be involved in the planning and implementation of cancer programmes.
 - Integrated services: For efficiency and to reflect their shared common risk factors, cancer programmes for specific diseases will be integrated. The policy also advocates for integration of related programmes such as TB control and other Non-Communicable Disease control. In line with the Political Declaration from the United Nations High-level Meeting in September, 2011, Non-Communicable Disease-related services will be

integrated into Primary Health Care services through health systems strengthening, according to capacities and priorities.

- Affordable technology: The best evidence-based interventions may not necessarily be affordable in a poor resource setting such as Nigeria but most affordable technology, medicines and delivery systems will be employed in the implementation of the cancer prevention and control policy.

Cancer prevention and control policy will relate to five strategic areas:

1. Primary prevention – tobacco, diet, physical activity, alcohol and immunization
2. Early detection and clinical care
 - Early detection
 - Provision of treatment services
3. Health system strengthening
 - Training of health workers and developing human resource capacity
 - Provision of essential drugs and supplies
 - Integration of Non-Communicable Disease plans into wider health systems planning
 - Ensure financial mechanisms for improved allocation and efficient use of funds
4. Research and development
5. Surveillance of cancers and their risk factors

However, up till 2007 when the Federal Government inaugurated the National Commission on Cancer Control and a National policy on Reproductive Health and Strategic Framework and this present day, no item on the agenda has been implemented (Lambo, 2007).

In Lagos and Oyo States, despite the comprehensive health policies aimed at coping with health care delivery services, breast cancer awareness campaigns only came to lime- light in 2004 with a breast cancer campaign in Kosofe local government Area of Lagos State and Ibadan North local government area of Oyo State respectively. This was strengthened with the installation of screening machines in Ikeja and Orile-Agege General Hospitals as well as University College Hospital (UCH), Ibadan.

Non-Government Organizations such as Care Organization Public Enlightenment (COPE), Breast Cancer Association of Nigeria (BRECAN), The Well Being Foundation, Optimal Cancer Care Foundation, Pink Pearl Foundation, Medical Women Associations and other individuals have so far supported the breast cancer prevention and control programmes with activities geared towards creating awareness on the breast cancer and other common cancers in Nigeria; creating access for women to have clinical breast examination free of charge in UCH, Ibadan; provision of emotional and informational support to cancer patients and their family members; free breast and cervical cancer screening (StayHealthWise, 2013).

Early detection measures for breast cancer

Early detection and prompt treatment offer the greatest chance of long-term survival. Mammography, Clinical Breast Examination (CBE) and Breast Self Examination (BSE) are the secondary preventive methods used for screening in the early detection of breast cancer. Cancer screening tests play a pivotal role in reducing breast cancer related mortalities. The American Cancer Society (ACS) recommends BSE and mammography in the early detection of breast cancer. Breast self examination is a simple and cost effective method of breast cancer screening in limited resources countries. BSE is a formalized practice in which a woman is taught how to examine her own breast regularly (usually monthly after 20 years.) During the breast self examination, a woman systematically inspects, and palpates her each breast using her lateral hand with her arm raised above her head. She performs her examination both in lying and standing position. Usually, it is better to examine the breast in front of mirror so that she can inspect any sort of asymmetry or dimpling (Anderson *et al.*, 2003). According to ACS recommendations, women should know how their breasts normally feel and report any breast changes promptly to their health care providers. BSE is an option for women starting from the early 20s. BSE also seems to be an important viable optional substitute available in rural areas, where access to CBE and mammograms is difficult and might still detect breast cancer early enough for treatment which can be offered to prolong women's lives and reduce suffering.

Unlike CBE and mammography, which require hospital visit and specialized equipments and expertise, BSE is inexpensive and is carried out by women themselves. Several studies, based on breast cancer patient's retrospective self-report on their practices of the

exam, have established that a positive association exists between performance of the exam and early detection of breast cancer (Philip, Harris, Flaherty and Joslin, 1986). There is also evidence that most of the early breast tumours are self-discovered (Smith, Saslow, Andrews, Sawyer, Burke, Costanza and Evans, 2003) and that the majority of early self-discoveries are by BSE performers (Smith *et al.*, 2003).

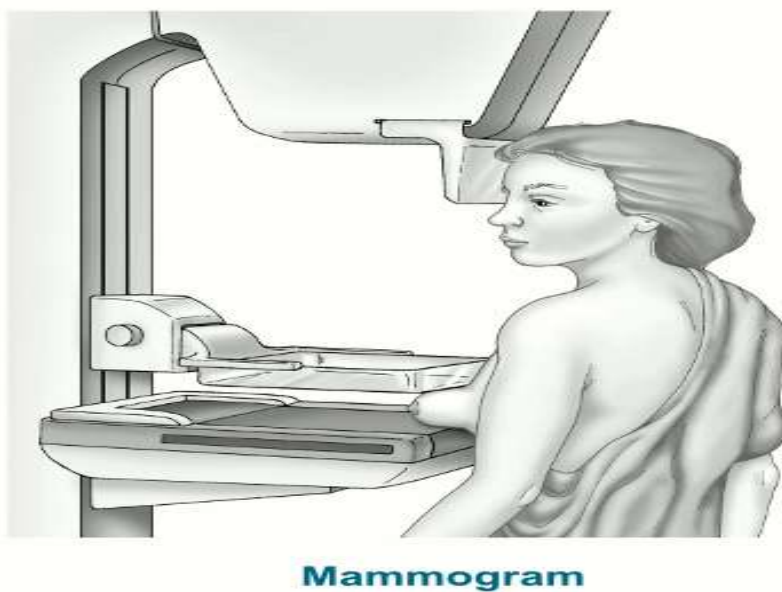
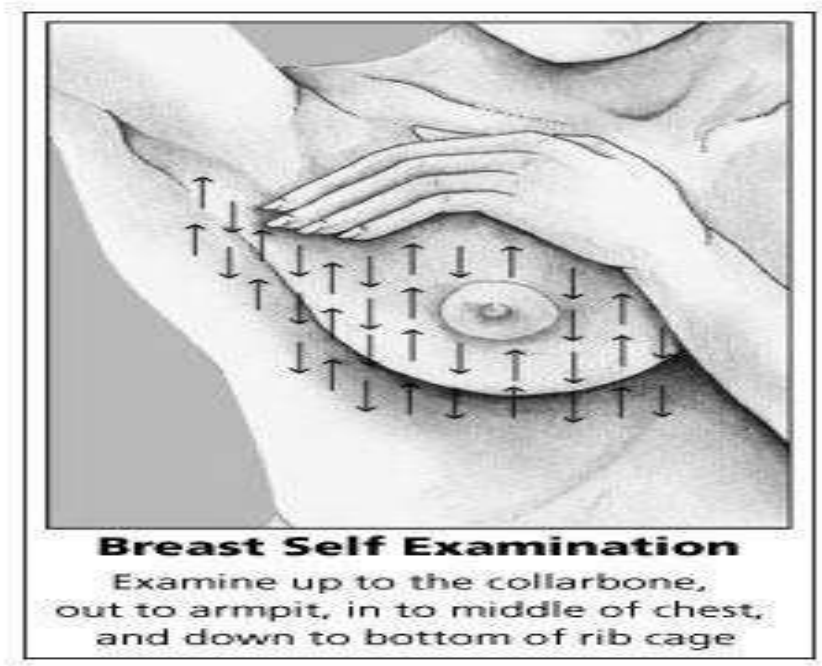


Figure 2.1: Illustration of BSE and mammogram screening

Breast self examination: Knowledge, Attitude and Practice

Breast self examination is an important, cheap and easy method for early diagnosis of breast cancer. Carcinoma of the breast is an important public health problem with its associated high morbidity and mortality (Maurer, 2000). Low level of awareness on breast self examination has been reported among Nigerians. Similarly the awareness of risk factors and early warning signs of the disease among different groups were below average (Adebamowo *et al.*, 2000).

Early diagnosis has a positive effect on the prognosis as well as limits the development of complications and disability. Furthermore, it increases life quality and survival. In some studies, it has been reported that women who carefully examined their breasts could find small masses of breast cancer and their prognosis became better. For example, in a study carried out by Philip *et al.*, 54.0% of 304 patients with newly diagnosed breast cancer claimed to practise BSE (Philips *et al.*, 1986).

Breast self examination is a process whereby women examine their breasts regularly to detect any abnormal swelling or lumps in order to seek prompt medical attention. Medical advances have shown that one-third of all cancers are preventable and a further one third, if diagnosed sufficiently early, is potentially curable. In a study carried out on the knowledge, attitude of breast self examination carried among women in a rural area in Western Turkey, 23.4% of them had no knowledge about breast cancer, 27.9% had no concept of breast self examination, 89.3% had never had a mammography and 75.0% had never had clinical breast examination (Dundar, Dilek, Beyhan, Gokce, Filiz and Sumeyra, 2006).

Grunfeld, Ramirez, Hunter and Richards conducted a survey on 1830 general female population of UK to elicit information on knowledge and belief about breast cancer. In the study it was found that women had limited knowledge on risk factors and breast cancer related symptoms. Only 23% correctly indicated that 1 in 10 have a chance to developed breast cancer. Less than one third recognized the role of advancing age as a potential risk factor. More than 70 % of the sample identified that painless breast lump, lump under armpit, nipple discharge are potential symptoms (Grunfeld, Ramirez, Hunter and Richards, 2002).

Pham and Mcphee conducted a study on “Knowledge, attitude and practice of breast cancer and cervical cancer screening among Vietnamese women” In their study they found one-third did not know that a breast lump could be a sign of breast cancer. Many (55%) did not know family history was a risk factor for developing breast cancer. Among the respondents 52% indicated that little could be done to prevent breast cancer. More than one third (33%) reported that breast cancer is caused by poor hygiene and that it is contagious. Only 13% had heard about Breast self examination (Pham and Mcphee, 1992).

The knowledge of the nurses on BSE in the study conducted by Demirkiran, Balkaya, Memis, Turk, Ozvurmaz and Tuncyurek in 2007 among nurses and teachers working in Aydin, Turkey was higher than that of teachers (81.5% versus 45.1%; $p < 0.001$); the correct frequency and timing of BSE in women with regular and irregular menstrual cycle was below average. The role of age in the frequency of practice BSE was controversial, while some study found a negative association between age and BSE. Breast self examination practice parameters (i.e. age groups, indications, frequency) were similar ($p > 0.05$), whereas skills in performing breast self examination were higher in nurses ($p < 0.001$). Fear of having breast cancer is the most frequent reason for performing BSE. Among nurses, the reasons for failure to perform BSE were the absence of prominent breast problems (82%) and forgetting (56.4%). The teachers (68.9%) who did not perform BSE said that the reasons were lack of knowledge on how to perform breast self examination and absence of problems (54%). Both groups had unacceptable technical errors in the performance of BSE. Greater than half of the doctors started BSE earlier and practised it on a monthly basis compared to the nurses (Demirkiran, Balkaya, Memis, Turk, Ozvurmaz and Tuncyurek 2007).

Another population-based survey was carried out by Ali, Mariam, Iraj, Amir, Akram, Fatemeh, Mandana, Shahpar and Soghra on “women awareness of warning signs and effective screening methods of breast cancer among women in Tehran, Iran”. A total of 1402 women were interviewed. The mean age of respondents was 43.4 (SD = 14.4) years; most were married (85%), and without any personal (94%) and family history (90%) of breast problems. It was found that 64% of the respondents were familiar with breast cancer and 61% believed that 'the disease is relatively common among women in Iran. Most women (44%) perceived a painless mass as a breast cancer symptom. Overall, 61%

of the respondents stated that they knew about breast cancer screening programs and most indicated that electronic media (television 34% and radio 14%) were their source of information. Only 17% of women said that 'they were conducting regular breast self-examination. The main reason for women not doing breast self-examination was due to the fact that they did not know how to do it (64%). The findings indicated that performing breast self-examination is significantly related to: age, marital status, education, knowledge of breast cancer and knowledge about breast cancer screening programs ($p < 0.05$), but not to personal ($P = 0.2$) and family ($P = 0.7$) history of breast problems (Ali Montazeri, Mariam, Iraj, Amir, Akram, Fatemeh, Mandana, Shahpar and Soghra, 2008).

Haji-Mahmoodi, Montazeri, Jarvandi, Ebrahimi, Haghighat and Harirchi conducted a cross-sectional study on female health care workers in Tehran, Iran to examine the knowledge of breast cancer, and their attitude and practice towards BSE. In the study, they found that 75% of the women knew about breast cancer, 27% knew that breast pain is not a symptom of breast cancer. Regarding attitude toward BSE, 63% believed that BSE is not difficult and 72% agreed that BSE is time consuming or troublesome. Only 6% of the women performed BSE monthly on a regular basis. About average (50%) of the participants performed occasionally and 44% never practiced BSE. The researcher also found out that women more than 50 years of age, with higher education and professional status, positive personal history about breast problems and those who had more knowledge about BSE were more likely to practice BSE than other female health worker (Haji-Mahmoodi, Montazeri, Jarvandi, Ebrahimi, Haghighat and Harirchi, 2002).

Abdul Bari, Alwash, Miller, Denic and Dunn conducted a cross sectional community base line survey to explore the knowledge, attitude and practice related to breast cancer screening among women of United Arab Emirates. They found that only 30% of the women agreed that family history was a risk factor, and 45% incorrectly stated that most of the breast lump would become cancerous. One third (33%) of the women knew that early breast cancer was painful. Most of the women (79%) agreed to have breast examination by a doctor but only 14% had experienced a clinical breast examination. Only 13% performed breast self examination regularly on monthly basis (Abdul Bari, Alwash, Miller, Denic and Dunn, 2001).

In a survey conducted by Jahan, Al-Saiqul and Abdelgadir among women in Qassim region of Saudi Arabia, it was reported that the mean age of the participants was 36.2 ± 10.2 years and 70.7% of them were literate. Regarding the knowledge of risk factors, 76% of the respondents had 3 or more correct answers out of the total 7 questions. Regarding knowledge of participants about breast cancer, 287 (95.7%) of respondents had heard of breast cancer. Twenty-six percent of the respondents did not know the presenting symptom of breast cancer. Seventy percent of the participants had never heard of breast self examination. Of the total respondents, 226 (75.3%) of the respondents strongly agreed to the fact that early detection of breast cancer increases the survival of the patient, 18.7% reported that they practice breast self examination, majority (57%) of whom had started performing breast self examination within the previous year. However, 74% of the respondents did not have access to breast health information (Jahan, Al-Saiqul and Abdelgadir, 2006).

In a study entitled “Breast cancer risk factors knowledge among nurses in teaching hospitals of Karachi, Pakistan”: a cross sectional study conducted by Ahmed, Mahmud, Hatcher Juanita and Khan in 2006, it was reported that 35% had good knowledge, 40% had fair knowledge while 25% had poor knowledge of breast cancer risk factors. Majority (99%) of the nurses could identify that breast cancer is a non communicable disease and 96% answered that breast feeding is not the cause of developing breast cancer. Majority agreed that evil spirit had nothing to do with breast cancer. However, only 23% nurses knew that overweight increase the risk of breast cancer (Ahmed, Mahmud, Hatcher Juanita and Khan, 2006).

In a study carried out to know the effect of BSE training program on knowledge, attitude and practice of a group of working women in Ains Shams University, Abbassia, Cairo, Egypt by Nahla *et al.*, in 2011. The total number of the participants was 520; the researchers found out that only 10.6% and 11.5% of the total sample had satisfactory knowledge about BC and BSE respectively. On the other hand, 13.1% practised one step out of five regularly. Few (39.3%) had negative attitude toward BC and BSE. Regarding barriers for practicing BSE, the majority (91.8%) mentioned lack of knowledge while 50% of responses were fear and worries to discover BSE. Also, one third of the participants gave no time and forgetfulness as the reason for not performing BSE. After the program implementation, a remarkable improvement in participants' level of

knowledge, attitude and practice of BSE was observed. The differences were statistically highly significant ($p \leq 0.01$), (Nahla, Fathia and Nadia, 2011).

Another cross-sectional study was conducted among one thousand community-dwelling women from a semi-urban neighbourhood in Nigeria by Michael, Clareann, Friday and Usifo to elicit knowledge, attitude and practices towards breast cancer and breast self examination. The Study results showed poor knowledge on breast cancer. Mean knowledge score was 42.3% and only 214 participants (21.4%) knew that breast cancer present commonly as a painless breast lump. In response to questions about aetiology of breast cancer, 40% believed that evil spirit causes breast cancer and 259 (25.9%) indicated that breast cancer result from an infection. In terms of methods of diagnosis 432 (43.2%) were able to answer correctly identified that BSE is a method of diagnosis. There was an indication of positive health seeking behaviour as a majority of the participants mentioned that visiting the doctors was the best approach for breast cancer treatment. In terms of practices, 34.9% participants practice BSE. Only 91 participants (9.1%) had clinical breast examination (CBE) in the past year and no one had the history of mammography examination. Majority of the respondents did not take part in BSE or clinical breast examination due to having no breast problem (Michael, Clareann, Friday and Usifo, 2006).

In a study carried out by Balogun in 2005, 31.7% of the respondents (Market Women in Sango Market, Ibadan) were reported to be aware of breast self examination while 18.1% of the traders had ever checked their breast. The women who had tertiary education were more knowledgeable about breast self examination while those who had primary education had the least knowledge. 18.1% of the traders reported that they practised breast self examination. The practice was highest amongst those aged 50-59 years and lowest for those aged less than 30 years (Balogun and Owoaje, 2005).

In a study on knowledge, attitude, practice of breast self examination among female secondary school teachers in Ilorin, It was found out that most (95.6%) respondents were aware of breast self examination. The electronic media were the major sources of information while the health workers were the least. The attitude of teachers to health information on breast self examination was positive, with a fairly high degree of acceptability of the idea. Despite the positive attitude towards breast self examination,

about 54.8% of the teachers practised breast self examination (Kayode, Akande and Osagbemi, 2004).

In another study carried out by Akpo, Akpo and Akhator in 2010, the participants' general knowledge of breast cancer and its aetiology was fair; the majority (55.6%) still thought that breast cancer was caused by putting money between the breast and the brassiere. The knowledge of breast cancer risk factors among the students was also fair. The mean percentage of correct responses was 62.7%. None of the participants could recognize all the listed risk factors correctly. This knowledge level is poor and is comparable to a similar study in Nigeria among school teachers where only 27% of the participants were able to identify three risk factors correctly. Many of participants recognized the correlation between a positive family history and the risk of developing the disease. There are indications that women with a family history of breast cancer, especially a first-degree relative, have about 30% increased risk of developing the disease and the risk increases if more than one first-degree relative has the disease. Adequate knowledge of the significance of this risk enhanced the students' early self breast examination (Akpo, Akpo and Akhator, 2010).

In another study conducted by Odusanya and Olufemi conducted a cross sectional survey among nurses in general hospital in Lagos. Two hundred and four nurses were involved in the study. Knowledge about symptoms methods of diagnosis, and Self breast Examination was above 60%. In response to question on the risk factors, more than 50% identified positive family history and that bruising the breast is a potential risk factor for developing breast cancer. The nurses were well informed about frequency of breast self examination. More than one third (39.7%) of the respondents knew that BSE should be done monthly interval. Majority (78.4%) of the respondents agreed that breast cancer is a curable disease if diagnosed and treated early. Majority (90%) considered that the disease is serious and would see a doctor within one month. BSE was most frequently done (89%). Among them 39 % conducted the procedure at monthly interval. Use of all 3 methods of screening was more common among those who had a greater knowledge about breast cancer (Odusanya and Olufemi, 2001).

A survey carried out by Gwarzo, Sabitu and Idris, among female undergraduate students of Ahmadu Bello University Zaria, North-western Nigeria, revealed that there is wide gap

between knowledge and practice of BSE. Similar studies have documented this gap in knowledge and practice of BSE. For example, in a two series study carried out in Benue by Adebamowo et al., they first found out that the level of knowledge of BSE was 24.5% while the level of practice was found to be 1.5%. In their second study, the percentage of women who knew BSE was 53.7% while 39.0% were performing it. Indeed, the ratios that have been found in the latter are much greater than either in the former. The findings in Gwarzo's study clearly demonstrated that practice of breast self examination is poor in the study population. Gwarzo, Sabitu, Idris concluded that the wide gap between knowledge and practice could be reduced in the study area through a rational public health education with well-defined strategies (Gwarzo, Sabitu and Idris, 2005).

In another study conducted by Iurhe, (2010) at College of Medicine of the University of Lagos, Nigeria, the age of the respondents ranged from 15 years to 26 years with the mean age group as 21 years. This age pattern is consistent with the present 9-3-3-4 educational system in Nigeria. Most of the respondents surveyed had heard of breast cancer (97.3%) and 85.8% claimed they knew how (BSE) is done; the level of breast cancer awareness of the respondents may have been due to their area of study and level of education. Their primary source of information was the television or radio. The least reported primary source of information on breast cancer in the study was the home of the respondents (23%). A little more than half (65.4%) of the respondents believed that it is necessary to perform breast self examination. This showed that the level of concern about screening for breast cancer is still low among the respondents considering their status as medical students and a lot much more would be expected from them as future doctors; 83.1% of the respondents claimed to have carried out breast self examination before; this demonstrated that some attention was being given by the young adults in this study to check their breast for early onset of lump, discharge and other symptoms of breast cancer, though not regularly as nearly half (43.5%) of the respondents had not examined their breasts in nearly one year. As a result of this ignorance, little emphasis may be placed on regular practice of BSE by such respondents (Iurhe, 2010).

In a similar study carried out by Agboola, Deji-Agboola, Oritogun, Musa, Oyebadejo and Ayoade in 2009 among female health workers of Olabisi Onabanjo University Teaching Hospital, Sagamu, Nigeria; majority of the respondents had knowledge of breast cancer and breast self-examination. This was expected considering the fact that they were health

professionals and must have acquired this knowledge during their educational training (Agboola, Deji-Agboola, Oritogun, Musa, Oyebadejo and Ayoade, 2009).

Positive associations had been demonstrated between educational level and BSE practice, although one study found no difference between educational groups and the practice of breast self examination (Smith, Saslow, Sawyer, Costanza, Evans, Foster, Hendrick, Eyre and Sener, 2003). The doctors performed BSE in a more regular and timely manner compared to the nurses. They might have been more conscious of BSE or have been affected by information received during their medical training or cases seen in their careers. However, less than half of the nurses performed breast self examination. Although the nurses who were studied had knowledge of BSE, it did not reflect in their attitude and practice. It was also reported that most female physicians and nurses (65% and 70% respectively) believed that breast self examination was unnecessary (Smith *et al.*, 2003).

Oluwatosin and Oladepo (2006) conducted a study on rural women of Ibadan, Nigeria and found that 73.7% of the respondents claimed that they did not know any warning signs of breast cancer. Only 1.9% identified that painless lump could be a warning sign. Majority (90.7%) of the respondents did not know anything about treatment of breast cancer. More than half of the participants (55.2%) however agreed that early detection and effective treatment can prevent death. Moreover, only 6.4% identified BSE as an early detection measure while 1.2% identified clinical breast examination and no one could identify that mammography as an early detection measure. In response to the question "Have you ever examined your breast for early detection of breast cancer?" only 10.9% answered "Yes" while 89.1% answered "No". Among the 300 sample size only 54 claimed that they had ever heard of BSE and the leading source of information was "elders", "neighbours" and "friends". In response to the question: "how many times in a month do you perform breast self examination?" majority of the respondents, 323 (79.4%) acknowledged that they did not practice BSE. None examined their breasts once a month. One participant (0.2%), claimed to examine her breast six times a month. Another five (1.2%) acknowledged examining their breasts eight times a month, while 66 (16.2%) could not remember how many times a month they examined their breast (Oluwatosin and Oladepo, 2006).

In a study conducted by Onyije, Zenebo and Oboma among female students in tertiary institutions in Nigeria, there was a poor knowledge on the etiology of breast cancer as 207 (39%) were aware that breast cancer can be inherited, 195 (37%) of the female students believe that breast cancer can be caused by evil spirit, while 129 (27%) had no idea if it was caused by evil spirit or not. Respondents had a very good knowledge of the signs and symptoms of breast cancer as 372 (72%) agreed that breast cancer usually present as a painless breast lump, 84 (16%) Disagreed while 57 (12%) were not aware of its signs and symptoms. Two hundred and thirteen (37%) of the respondents claimed to have heard about breast self examination through a doctor, 159 (30%) had not practised breast self examination, 255 (49%) practice once in a month, 39 (7%) practice once in two months and three to five times a year, 15 (3%) practice twice a year and 18 (4%) once in a year (Onyije, Zenebo and Oboma, 2010).

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Table 2.3: Summary of the literature review

S/N	Author/ Year	Type of study	Study population/ Location	Knowledge of BC and BSE	Attitude towards BSE	Practice of BSE
1	Dundar <i>et al.</i> , 2006	Cross-sectional	Women in rural area of Western Turkey	23.4% and 27.9% had no knowledge of BC and BSE respectively	None	None
2	Grunfeld <i>et al.</i> , 2002	Cross-sectional	1830 general women in the United Kingdom	Limited knowledge	Negative among older women	None
3	Demirkiran <i>et al.</i> , 2007	Cross-sectional	Nurses and Teachers in Turkey	Knowledge of BSE was higher among Nurses (81.5%)	None	68.9% of Teachers did not practice BSE
4	Haji-Mahmood <i>et al.</i> , 2002	Cross-sectional	Female health workers in Tehran	75% knew about breast cancer	Positive	44% never practised BSE
5	Abdul-Bari <i>et al.</i> , 2001	Cross-sectional	1445 Arabic women, United Arab Emirates	Bad knowledge of BSE	Positive attitude towards BSE	Poor practice
6	Jahan <i>et al.</i> , 2006	Cross-sectional	300 general women, Saudi Arabia	Fair	Positive attitude towards learning BSE	57% practised BSE
7	Ahmed <i>et al.</i> , 2003	Cross-sectional	609 Nurses, Pakistan	Low	None	None
8	Olumuyiwa <i>et al.</i> , 2001	Cross-sectional	204 Nurses, Lagos	High (68%)	Positive (90%)	High (89%)
9	Okobia <i>et al.</i> , 2006	Cross-sectional	1000 community dwelling women, Nigeria	Low	Positive	Bad
10	Oluwatosin <i>et al.</i> , 2006	Cross-sectional	420 rural women, Ibadan, Nigeria.	Poor	Negative	79.4% did not practice BSE

Theoretical framework: Health Belief Model

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 recognised and used models in health behaviour 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 immunisations for prevention of influenza (Health Education Behaviour Models and Theories). Many investigators studying beliefs related to cancer screening practices have used the HBM as a theoretical framework to study breast cancer screening behaviour such as breast self examination or mammography Screening (Wu *et al.*, 2003, Lagerlund, Hedin, Sparen, Thurfjell and Lambe, 2000).

The HBM has frequently been applied to breast cancer screening (Champion and Scott, 1997). The model stipulates that health-related behaviour is influenced by a person's perception of the threat posed by a health problem and by the value associated with his or her action to reduce that threat (Petro-Nustas *et al.*, 2002).

According to the HBM, a woman who perceives that she is susceptible to breast cancer and that breast cancer 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 Breast Self Examination would be more likely to practice breast self examination. A woman who has an Internal Cue 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 breast self examination, as would a woman who wants to improve her health and who is confident of positive results (Petro-Nustus and Mikhail, 2002 and Champion, 1993). The HBM consists of Six Concepts:

- Perceived susceptibility to an illness,
- Perceived seriousness of the illness,
- Perceived benefits for the presumed action,
- Perceived barriers for the presumed action,
- Cues to action and
- Health motivation.

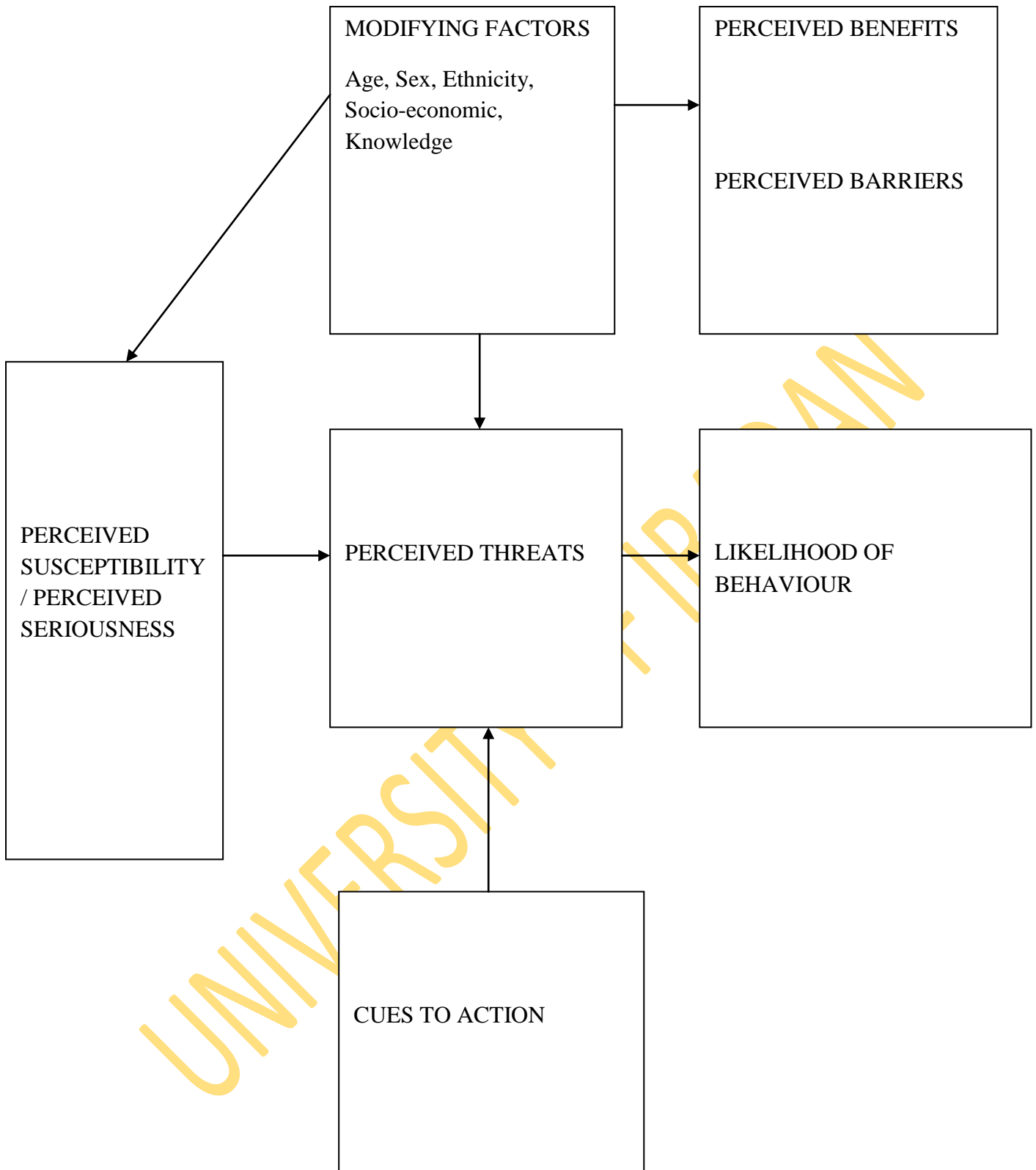


Figure 2.2: Health Belief Model

(Source: Champion *et al.*, 1997)

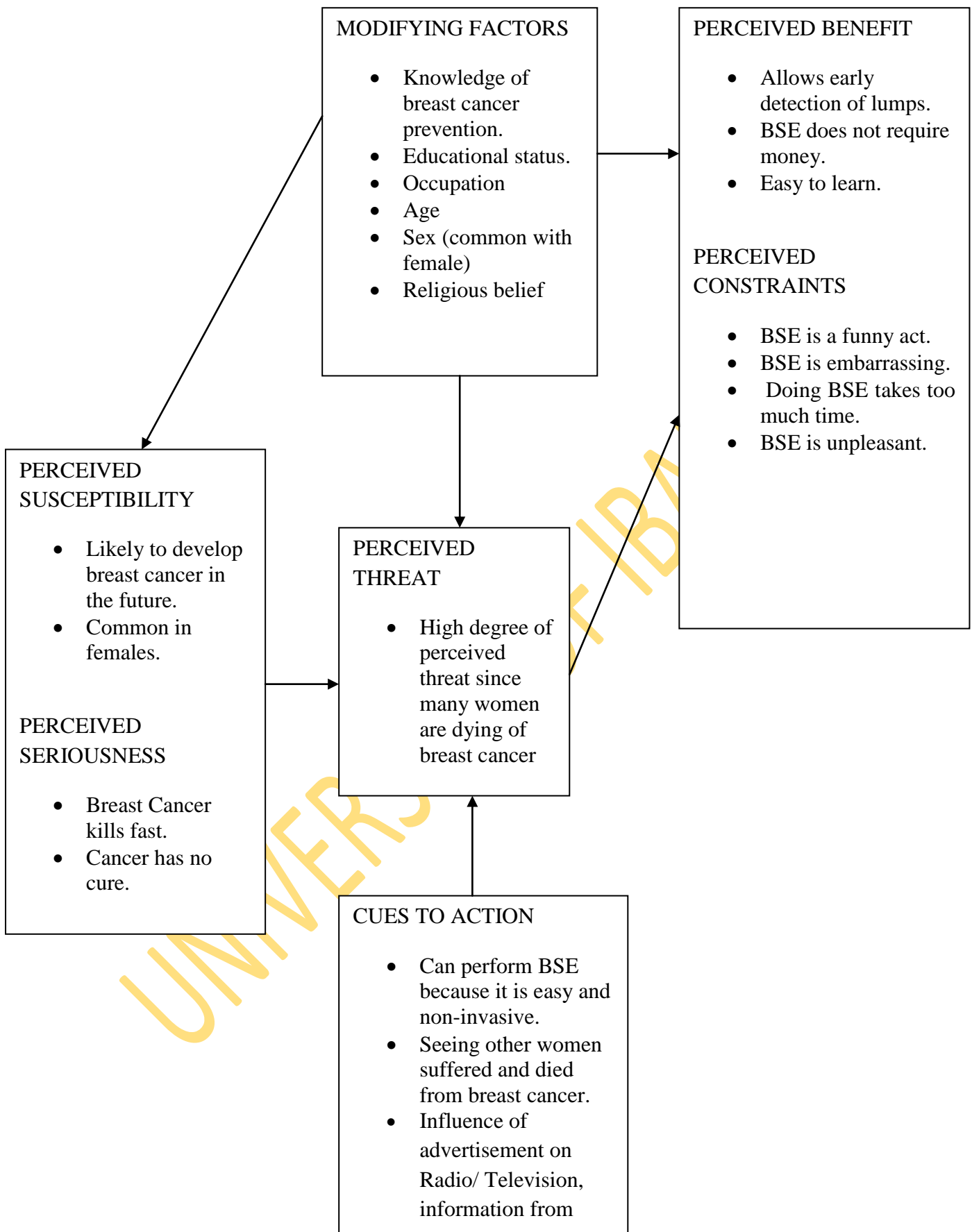


Figure 2.3: Health Belief Model applied to breast self examination practice

CHAPTER THREE

METHODOLOGY

This chapter deals with the methodology employed in carrying out this study. It describes the study design, description of study area, sampling procedure, sample size, the instrumentation, data collection process and data analysis.

Study Design

This cross-sectional descriptive study assessed the knowledge, attitude and practice of breast self examination among female apprentices residing in Egbeda local government area, Ibadan, Oyo State.

Description of study area

Ibadan is located in South-Western Nigeria in the South-Eastern part of Oyo State with an estimated population of 2, 949 million (Central Intelligence Agency, 2011). Ibadan Metropolitan area has eleven Local Governments Areas consisting of five urban local government areas and six semi-urban local government areas.

Table 3.1: The 11 local government areas in Ibadan metropolis and their headquarters

S/N	Local Government Area	Local Government Headquarters
1	Ibadan North	Bodija
2	Ibadan North-East	Iwo road
3	Ibadan North-West	Onireke
4	Ibadan South-East	Mapo
5	Ibadan South-West	Oluyole Estate
6	Akinyele	Moniya
7	Egbeda	Egbeda
8	Iddo	Ido
9	Lagelu	Iyana Offa
10	Ona-Ara	Akanran
11	Oluyole	Idi-Ayunre

Egbeda local government area as one of 11 local government areas in Ibadan metropolis was created in 1989; it was carved out of Lagelu local government area, a structure that has been in existence since 1961. It is bounded in the East by Osun River, in the North by Lagelu local government, in the South by Ona-Ara local government and in the West by the Lagos-Ibadan Express Road. The Local government currently has 5 urban political wards and 6 rural political wards covering a total of 136.83km². It has its headquarter in Egbeda town with a population of 281,573 as at 2006 (National Population Census, 2006); it consists of diverse ethnicities which is predominantly Yorubas. Others include the Ibos, Edos, Urobos, Itsekiris, Ijaws, Hausas, Fulanis and Foreigners from Europe, America, and other parts of the world. Majority of the population of this local government area are in the private sector: mainly traders and artisans while some are civil servants.

Table 3.2: Eleven wards in Egbeda local government and their localities

Wards	Ward Status	Localities
Erunmu	Rural	Erunmu, Adeleye Oloro
Koloko/Ayede	Rural	Ayede Atari Oyindola
Owo Baale/Kasumu	Rural	Efunwole Apaso Ore I Gidigidi Apoku Olode Ore II
Olodan/Ajiwogbo	Rural	Jooda Ajiwogbo Olodani Gberimi
Olodo 1	Urban	Jenriyin Wakajaiye Olukunle

		Oki Idi-Osan
Olodo 2	Urban	Academy Monatan Molade Adogba Ayepe
Olodo 3	Urban	Alarobo Agbalegan Olodo
Awaye	Rural	Awaye Osegere Olumakin
Egbeda	Rural	Egbeda Koroboto Mosafejo Ogungbade
Alakia/Olude	Urban	Olosan Alakia Adegbayi Akinfenwa Isebo Gbagi Jagun Aba-Ode Sarumi
Olubadan Estate	Urban	Alarere Brewery Saw-Mill Efun Village Ogbere-Oloda Gbaremu Oriyangi Oremeji

(Source: Tomori M. A., 2004).

The projected population of females within the ages of 15 and 24 in Egbeda local government was 23,447. (The projected female population was calculated from the 1991 population census using this formula $P_1 = P_0 e^{r \times n}$. 1991 population census was used in extrapolating this age group's population because the 2006 population census which is the recent population census had not been analysed based on the age group).

- P_0 is the given data i.e. the population size as at 1991 = 15,337
- e is a constant
- r is the growth rate = 2.83% = 0.0283
- n is the difference between the years = 15

$$P_1 = 15,337 \times (e)^{0.0283 \times 15}$$

$$P_1 = 15,337 \times (e)^{0.4245}$$

$$P_1 = 15,337 \times 1.5288$$

$$P_1 = 23,447$$

Study population

The study participants were mainly female apprentices within the ages of 15 and 24 years (WHO definition of youth) learning either a particular trade such as Provision trade, Patent Medicine trade, Foodstuffs trade, and Fabric/Textile trade; or handiwork which included Tailoring, Hairdressing, Auxiliary Nursing, Bead-making, Soap-making, Cake and Pastry-making, Hat-making, and Interior Decor.

Inclusion criteria

The respondents were female apprentices within the ages of 15 and 24 years according to WHO definition of youth and who were willing to participate. An Apprentice is a person learning a particular trade or handiwork under a skilled employer.

Exclusion criteria

This study excluded those who were above 24 years of age and those who refused to grant their consent after being informed.

Sample size calculation:

The sample size for this study was calculated using EPI INFO statistical package. The following parameters were entered in the STATCALC:

- The size of the population: 23,447 (the projected female population within the age group of 15 and 24 calculated from the 1991 population census).
- Expected frequency: 65.4% (Iurhe, 2010).
- Worst acceptable value at 5%.
- After inputting the parameters the sample size obtained was **586** at 99% confidence interval (*see Appendix A*).

With 24 discussants that participated in the focus group discussion, the total number of study participants was 630.

Sampling procedure

A three-stage random sampling technique was used to select the sample as follows:

1. The 11 wards in Egbeda local government area were stratified into rural and urban area. Six out of the 11 wards in Egbeda local government area are rural while the remaining five are urban as shown in the table below:

Table 3.3: Classification of 11 wards into rural and urban wards

Urban Wards	Rural Wards
Olodo 1	Erunmu
Olodo 2	Koloko/Ayede
Olodo 3	Owo Baale/Kasumu
Alakia/Olode	Olodan/Ajiwogbo
Olubadan	Awaye
	Egbeda

2. Six wards (Three from each stratum) were randomly selected from both the rural and urban wards of Egbeda local government area. The six wards that were randomly selected with their status is presented in the table below:

Table 3.4: Selected wards and Areas covered during the course of this study

Ward	Status	Area Covered
Owo Baale/Kasumu	Rural	Efunwole, Apaso, Ore I, Olode and Ore II
Awaye	Rural	Awaye, Osegere and Olumakin
Egbeda	Rural	Egbeda, Mosafejo and Ogungbade
Olodo 2	Urban	Academy, Monatan, Molade, Adogba and Ayepe
Olodo 3	Urban	Alarobo, Agbalegan and Olodo
Alakia/Olode	Urban	Olosan, Alakia, Adegbayi, Akinfenwa, Isebo, Gbagi and Sarumi.

3. In selecting the study participants, a purposive sampling technique was used. Eligible respondents that were available in each shop outlet were interviewed till the target sample size was met. A shop outlet is any facility where goods are being sold e.g. Fabrics/Textile, Foodstuffs, Medicine or where services are being rendered or provided e.g. Tailoring, Hairdressing, Interior Decor e.t.c. The estimated number of shop outlets that are available in the selected wards as well as the number of shops visited during the course of this survey is presented in the table below:

Table 3.5: Number of participants interviewed and the number of shops visited

Wards selected	Estimated number of shop outlets	Number of shop outlets visited	Number of participants interviewed
Owo Baale/Kasumu	49	26	78
Awaye	55	21	75
Egbeda	60	28	80
Olodo 2	575	37	129
Olodo 3	275	24	101
Alakia/Olode	1,217	40	123
Total	2,231	176	586

Instrument for data collection

Qualitative and quantitative methods of data collection were used to obtain information needed for this study. The instruments that were used are focus group discussion guide (*see Appendix B*) and questionnaire (*see Appendix C*). The instruments were designed from research questions, conceptual frame work and by reviewing existing literatures extensively.

The FGD guide was developed from the objectives of the study; it consisted of questions relating to knowledge on breast cancer and BSE. This included questions on various health problems which affect female youth within the community, identify various breast-related problems within the community, causes of breast cancer, stages of breast cancer occurrence, breast self examination and so on; attitude towards BSE included questions on what they feel towards breast self examination, preference for breast self examination as an early detection means of breast cancer and so on; the practice of BSE consisted of questions on practised breast self examination and how often they practice breast self examination and so on. The FGD guide was developed in English which was then translated to Yoruba language by a Yoruba language scholar.

The questionnaire was developed based on information drawn from the objectives of the study, literature on aetiology of breast cancer, beliefs on breast cancer, common methods for early detection of breast cancer, knowledge of breast self examination. A three-point Likert-type scale (from strongly agree to disagree) was used to elicit the perceived constraints in performing breast self examination. Questions on practice of breast self examination were adapted and modified from a study by Oluwatosin *et al.*, 2006. A three-point Likert-type scale (from strongly agree to disagree) was also used to elicit information on the perceived benefits of breast self examination. Questions on factors that influence non-practice of breast self examination were developed through the review of past literatures. Developed in the English language, the questionnaire was then translated into Yoruba language, which is the official language of Oyo State. The questionnaire was pre-tested among 50 female apprentices (learning Hairdressing, Tailoring, Patent Medicine trade, Bead-making, Pastry-making trade, Fabric trade) drawn from Ibadan South-East Area of Oyo State. After the pre-

test, necessary corrections drawn from the pre-test were made and final instrument had 32 items in all with four sessions.

Validity

The validity of the instrument was ensured through peer review, review by experts, and review of relevant past literature, researchers for face and content validity. The instruments (FGD guide and questionnaire) were also pre-tested in April, 2012 among female apprentices in Ibadan south-east having similar characteristics with the target population. 50 participants were interviewed and one FGD session was conducted with six discussants. This was done by the researcher alongside with the two research assistants that were recruited for the survey; the pre-test was analysed and the result was submitted to the project supervisor which was scrutinized; this helped in modification of the instruments used.

Reliability

The reliability of the instrument was ensured by pre-testing the questionnaire among 10% of the sample population who shared similar characteristics with the study population. Alpha-cronbach correlation coefficient of the SPSS (statistical package for social sciences software) was used to calculate the reliability of the instrument. The reliability score obtained for the instrument used was 0.652 which is greater than 0.5. A reliability test score greater than 0.5 is considered reliable.

Recruitment and Training of Research Assistants

Two research assistants were recruited and trained. The training which was took place for 2 days focused on the objectives of the study, importance of the study, the sampling process which included how to administer the instrument and how to obtain participants' informed consent. The study instruments were discussed in details (both in English and Yoruba language) during the training and the research assistants became familiar with the instruments by practicing what they had learnt during the pre-test which was carried out among female apprentices in Ibadan South-East local government area in Ibadan. The pre-test was conducted in April, 2012.

Data collection process

Four FGD sessions were conducted among the female apprentices who were randomly selected from Egbeda, Awaye, Alakia and Olodo 2 communities; this was done in order to explore additional information on the issues that were covered in the questionnaire. This was on for a whole week. Each session consisted six discussants, one note-taker and one moderator; each discussion session lasted for 45 minutes or 1 hour. The discussants were females within age 15 to 24 years and were trainees under a skilled professional learning either handwork or trade. The discussants in each session were numbered speaker 1 to 6 as this enabled the note-taker to take down the opinion of each discussant. The number of discussants in each group was not less than six. Discussants were appreciated and incentives were given to them after each session.

Each participant from the six wards which were randomly selected was interviewed face-to-face by a trained researcher using a semi-structure questionnaire. The questionnaire was designed to obtain information on socio-demographic characteristics of the respondents (which include Age, Religion, Ethnic group, Marital status, Level of education, family history of breast cancer and so on), knowledge of breast cancer and breast self examination, attitude of the respondents towards breast self examination, prevalence and pattern of breast self examination practices and factors influencing the practice of breast self examination among the respondents. The specific objectives of the study well explained to the participants and their consents were sought after the clarification of the study. The quantitative data collection was on for 24 days (Monday to Saturday). Participation was however made voluntary. Brief meetings were held with the research assistants on a daily basis so as to monitor and ensure appropriate data collection process. Each questionnaire was well cleaned and edited before data entry.

Method of Data management and analysis

The questionnaires were collected and checked for completeness. Serial numbers were written on each questionnaire for easy identification and recall of any instrument. The questionnaires were stored in a safe place to avoid destruction. Administered questionnaires

were edited and coded by the researcher. The findings were summarized and presented in tables and charts for better understanding.

The FGD data were manually analyzed by the researcher in order to generate relevant information from the discussion sessions; this was transcribed verbatim and subjected to content analysis which was described in prose. On the other hand, the quantitative data were entered and analysed using descriptive statistics and chi-square on SPSS version 15.0. The results were presented in tables and frequencies. Respondents were awarded one point for each correct response and zero point for each wrong or 'do not know' response on items related to knowledge, attitude and practice. The questionnaire included a 32-point knowledge scale on BC and BSE, 11-point attitude and 13-point BSE practice scales. Knowledge score of ≤ 15 , >15 to 28 and >28 were rated as poor, fair and good knowledge respectively. Attitude score of ≤ 5 and >5 were rated as negative and positive attitude. Practice score of ≤ 7 and >7 were rated as unhealthy and healthy practice respectively. However, questions on factors influencing the practice of breast self examination were not scored. The differences between the independent and the dependent variables were considered significant when p-value was less than 0.05. The hypotheses were tested using Chi-square test to compare dependent and independent variables.

Ethical consideration

Ethical approval was sought from the Ethical Review Committee of Ministry of Health, Oyo state (*see appendix D*). The study also followed the ethical principles guiding the handling of human participants in research. The participants were treated as autonomous persons; therefore the participants decided voluntarily to take part in this study. This study also ensured that no harm was done to the participants rather the benefit was highly maximized. No harm was done to the participants regardless the benefits that followed this study. Prior orientation regarding the objectives and possible impact of the study, emphasizing the right of the subject to non participation was given to the participants. Data confidentiality was highly maintained all through the study.

CHAPTER FOUR

RESULTS

Socio-demographic of the respondents

Table 4.1 shows the respondents' socio-demographic characteristics. Five hundred and eighty-six questionnaires were administered to female apprentices within Egbeda local government in which there was 100% response. The respondents' age ranged from 15 to 24 with the mean age of 18.0 ± 2.4 years. The major ethnic group was Yoruba (81.1%), 11.9% were Igbo, 1.5% were Hausa while 5.5% of the respondents were from other ethnic groups. Most (72.2%) of the respondents were Christians. Many (92.2%) were single, 6.9% were married while 1.2% of the respondents were co-habiting. Most (62.8%) of the respondents had secondary education, 29.7% had post secondary education, 5.8% had primary school education while 1.2% had no education. Highest proportion of the respondents (73.4%) started menstruating within the age group of 10-14 years and the mean age at menarche was 13 ± 1.6 years. Few (2.0%) of the respondents had family history of breast cancer.

Table 1: Socio-demographic characteristics of the respondents**N=586**

Socio-demographic characteristics	Number	%
Age group (years)		
15-19	370	63.1
20-24	216	36.9
Ethnic group		
Yoruba	475	81.1
Hausa	9	1.5
Ibo	70	11.9
Others*	32	5.5
Religion	423	72.2
Christianity	163	27.8
Islam		
Marital status	39	6.7
Married	540	92.2
Single	7	1.2
Co-habitation		
Level of Education	34	5.8
Primary	368	62.8
Secondary	174	29.7
Post secondary	1	0.2
Arabic school	9	1.5
None		
Age at menarche (years)	430	73.4
10-14	156	26.6
15-19		
Family history of breast cancer		
Yes	12	2.0
No	574	98.0
Mean age of the respondents (years) = 18 ± 2.4		
Mean age of the respondents at menarche (years) = 13 ± 1.6		

Others*- other ethnic groups were Urhobo, Efik, Igbira and Benin.

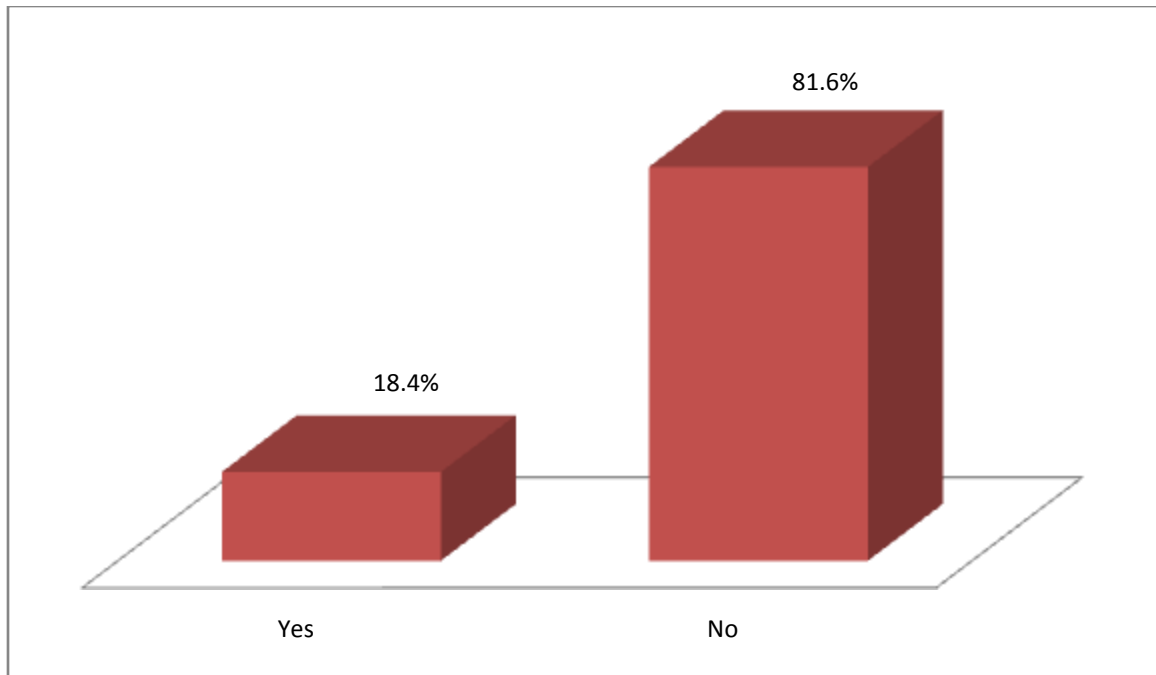


Figure 4.1: Percentage distribution of Respondents who had ever used any form of contraceptive

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Knowledge of breast cancer and breast self examination

Focus group discussants across the groups stated that the common types of breast problems in their various communities to be breast ache and lumps in the breast. Discussants' typical responses include: *"Females in this community do have breast pain especially during their puberty age and their monthly menstrual period"*.

"Hard lump in the breast is another common breast problem amongst females in this community".

Discussants across the groups unanimously reported that they had heard about breast cancer at one point in time of their life. Focus group discussants also identified causes of breast cancer as: Putting money in the breast, Use of tight and dirty brassieres, Breast smooching or sucking by man, Cigarette smoking and ingestion of alcohol.

Discussants across the groups recounted that breast cancer occurs in stages and that each stage has local names. They gave the stages involved in breast cancer development as:

1. Swelling of the breast (*Jomujomu*)
2. Breast hardening (*Somuroro*)
3. Rupture of the breast which is the final stage (*Jejere omu*)

Focus group discussants across the group stated that breast cancer can be prevented through regular examination of the breast, avoid putting money in the breast, use of clean and loose brassieres, reduction of alcohol intake and cigarette smoking. Following quotes reflect some of their opinions: *"Females should examine their breast everyday because breast cancer do show some physical signs such as breast discharge when a woman is not breastfeeding"*.

"Females should incorporate neat habits because wearing of neat brassier will prevent breast cancer".

"Women who drink alcohol should reduce their alcohol intake because there are some women who drink more than men and this is very harmful to their health".

"Young girls within this our age group should not allow their boyfriend to be smooching their breasts".

Discussants across the groups stated that breast self examination is a process of checking the breast for any abnormality. The age range of discussants when they first heard of breast self examination was 14 to 18 years. Discussants across the groups identified the best time to perform breast self examination to be in the morning. These quotes reflect some of their responses:

“Breast self examination is when you examine your breasts for abnormalities and this should be done everyday especially in the morning before going to the bathroom. I was 16 years of age when I first heard about breast self examination”.

“Ayewo omu sise funra eni je ona kan ni pato ti a fi le tete mo ti alebu kan ba wa ni omu wa. O dara lati maa se ni owuro. i.e. breast self examination is a particular way through which we can know if there is any abnormality in our breast. It is good to do it (BSE) in the morning”.

“Breast self examination is a process of checking our breasts for lumps. I actually heard about last year and I was 17 years old then”.

“Breast self examination is a way in which one can prevent breast diseases. I prefer doing breast self examination in the morning”.

Figures 4.2 and 4.3 show the percentage and the frequency of respondents who had ever heard of breast cancer and breast self examination respectively. Most (88.2%) of the respondents had heard about breast cancer while 54.4% had never heard of breast self examination. More of the respondents (47.7%) got information on breast cancer through television while the least source of information on BC was parents or guardians (*Table 4.2*).

Table 4.2 also shows the frequency and the proportion of sources of information on BSE; 88 (33.0%) of the respondents who had ever heard of BSE got the information through television, the least on sources of information list for BSE were radio and parents or guardians. Table 4.3 shows the respondents' knowledge on the causes of breast cancer. Most (89.1%) of the respondents admitted that putting money in the breast was the major cause of breast cancer, 355 (60.6%) reported that having too many children cannot cause breast cancer. Very few (33.8%) of the respondents acknowledged hereditary as one of the causes

of breast cancer while 7.0% admitted early menstrual cycle and late menopause as one of the risk factors for breast cancer.

Table 4.4 shows some of the respondents' beliefs about breast cancer. Very few (7%) of the respondents strongly agreed that breast cancer is a spiritual attack while 41.5% believed that they are susceptible to breast cancer because they are female. Few (12.8%) of the respondents strongly agreed that breast cancer has no cure when detected late while 46.2% of the respondents believed that breast cancer can be cured when detected early (*details in Table 4.4*).

Very few (16.6%) of the respondents reported that the correct time that BSE should be done monthly. More than average of the respondents (57.3%) reported not to know how often BSE should be done, 23.4% reported that BSE should be done weekly while 2.4% stated that BSE should be done once in a year.

Figure 4.4 shows the overall assessment of the respondents' knowledge of breast cancer and breast self examination; (0.3%) had good knowledge, 16.6% had fair knowledge while 83.1% had poor knowledge of breast cancer and breast self examination. The mean knowledge score on BC and BSE was 10.3 ± 4.2 out of a maximum score of 32 points.

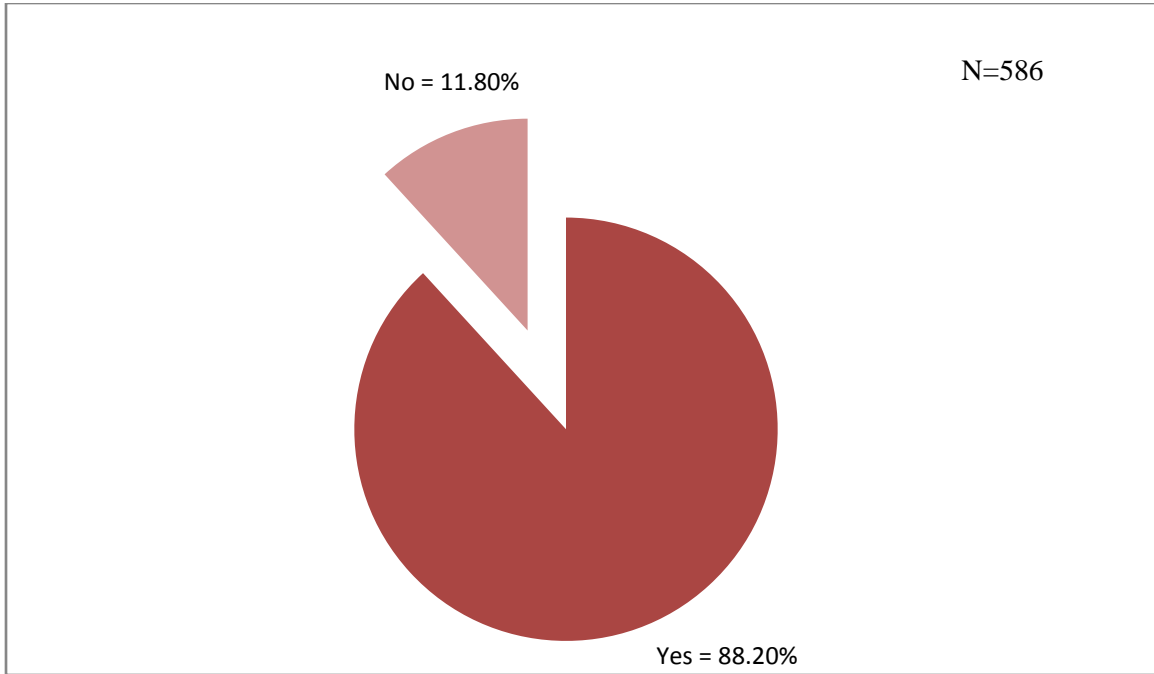


Figure 4.2: Proportion of respondents who had ever heard of breast cancer

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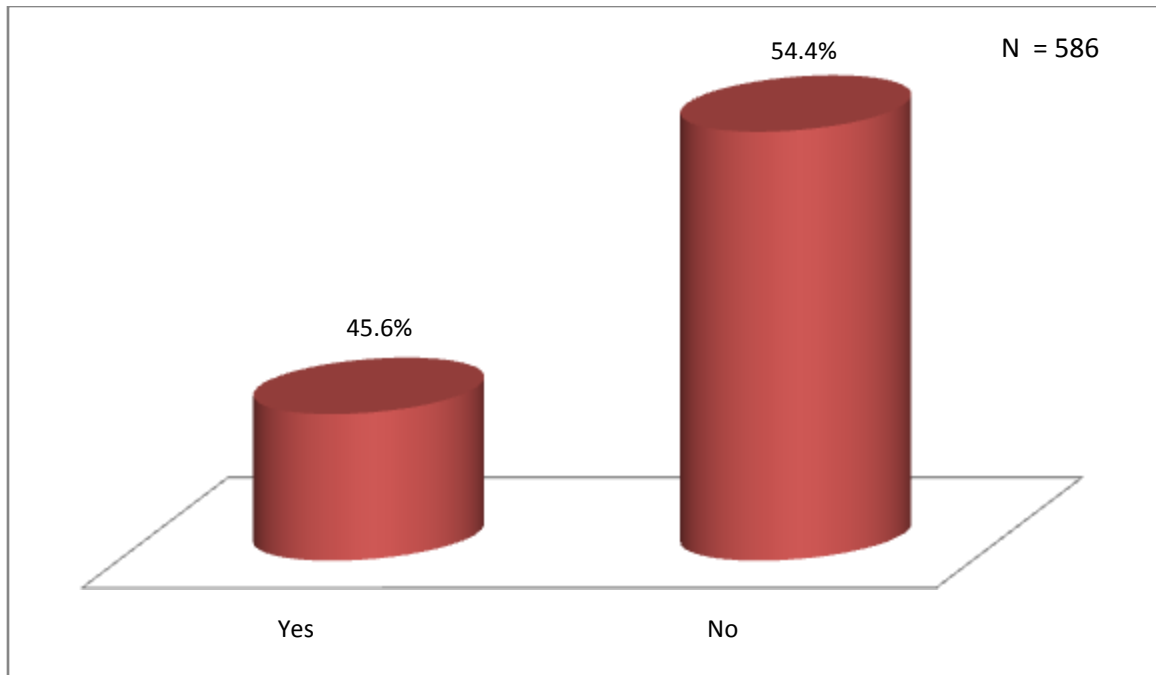


Figure 4.3: Percentage distribution of respondents who had ever heard of BSE

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Table 4.2: Frequency and percentage distribution of sources of information on breast cancer and breast self examination

Sources of information on BC N= 516	Frequency	Percentage (%)
Television	246	47.7
Radio	65	12.6
Peers	42	8.1
Parents or guardians	33	6.4
Health workers	34	6.6
Public awareness	96	18.6
Sources of information on BSE N=267		
Television	88	33.0
Radio	19	7.1
Peers	43	16.1
Parents or guardians	19	7.1
Health workers	55	20.6
Public awareness	43	16.1

Missing: those who had never heard of BC and BSE

Table 4.3: Respondents' knowledge of causes of breast cancer

N= 586

Knowledge of causes of BC	True N (%)	False N (%)	Don't know N (%)
Having multiple sexual partners	122 (20.8)	204 (34.8)	260 (44.4)
Using second hand brassieres	294 (50.2)	125 (21.3)	167 (28.5)
Having too many children	38 (6.5)	355 (60.6)	193 (32.9)
Putting money in the breast	522 (89.1)	23 (3.9)	41 (7.0)
*Hereditary	198 (33.8)	189 (32.3)	199 (34.0)
*Aging	67 (11.4)	278 (47.4)	241 (41.1)
*Smoking and ingestion of alcohol	269 (45.9)	128 (21.8)	189 (32.3)
*Women who starts menses early and stop late above 50 years	41 (7.0)	202 (34.5)	343 (58.5)

*- correct statement

Table 4.4: Respondents' beliefs about breast cancer

N = 586

Beliefs statement about breast cancer	Strongly agree N (%)	Agree N (%)	Disagree N (%)
Breast cancer is a spiritual attack.	41 (7.0)	114 (19.5)	431 (73.5)
*Breast cancer is a disease that affects female and therefore it can affect any woman (susceptibility).	243 (41.5)	234(39.9)	109 (18.6)
*Breast cancer has no cure when detected late.	75 (12.8)	152 (25.9)	359 (61.3)
*Breast cancer is curable when detected early.	271 (46.2)	239 (40.8)	76 (13.0)
*Breast cancer can be inherited.	86 (14.7)	137 (23.4)	363 (61.9)
Older women are more likely to get breast cancer than younger ones.	110 (18.8)	137 (23.4)	339 (57.8)

*- correct statement

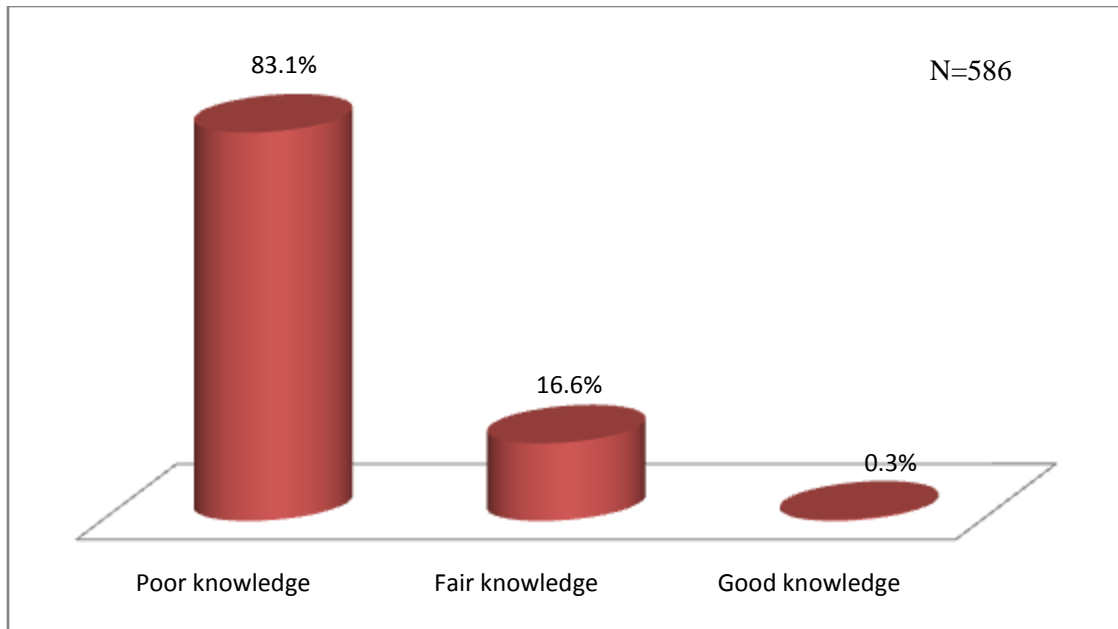


Figure 4.4: Respondents' level of knowledge on breast cancer and BSE

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Attitude towards breast self examination

Focus group discussants across the groups in wards 5 and 10 (Olodo 1/ Kumapayi and Alakia respectively) acknowledged that breast self examination is good because it allows early detection of breast cancer while discussants across the groups in wards 8 and 9 (Olodo 2 and Egbeda) recounted that breast self examination is a funny act. Discussants who acknowledged breast self examination had these to say:

“I feel good towards breast self examination because it can prevent me from having any breast problem in the future. In fact, the more reason why I like it (BSE) is because it allows early breast cancer detection”.

“I prefer breast self examination to any other way through which breast cancer can be detected because I will be touching my breast by myself because I don’t really feel comfortable when other person touches my breast”.

“Breast self examination is good because it (BSE) allows early detection of breast cancer and I so much prefer it (BSE) to any other means”.

Some discussants who said breast self examination is a funny act had these to say as well: *“I don’t like touching my breasts because it is embarrassing to me. “Breast self examination, o funny baje. i.e. breast self examination is really funny”. “Breast self examination is embarrassing. Imagine me examining my breast and my brother just barged into my room, I will be really embarrassed”.*

Most (87.7%) of the respondents who were aware of BSE reported that BSE was necessary while 12.3% of these respondents did not agree that breast self examination was necessary. Few (59.7%) of those who were aware of BSE preferred BSE as a means of early detection for breast cancer.

Table 4.5 shows the respondents’ perceptions on some of the constraints in performing breast self examination. Few (38.4%) agreed that BSE is a funny act while 48.3% agreed that BSE is embarrassing. Most (62.1%) consented that doing BSE will make them worry about breast cancer while 41.5% came to an agreement that BSE skills are difficult to learn (*details in table 4.5*).

The overall assessment of the respondents' attitude towards breast self examination revealed that 131 (22.4%) had positive attitude while 77.6% had negative attitude towards breast self examination. The mean attitude score was 4.9 ± 1.8 out of a maximum score of 11 points.

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Table 4.5: Respondents' perceived constraints to perform breast self examination

N= 586

Perceived constraints in performing BSE	Responses		
	Strongly Agree	Agree	Disagree
	N (%)	N (%)	N (%)
BSE is a funny act	68(11.6)	225(38.4)	293(50)
I don't feel comfortable touching my breast	48(8.2)	144(24.6)	394(67.2)
I don't feel comfortable when other people touch my breast	274(46.8)	216(36.9)	96(16.4)
I don't have enough privacy to do BSE	66(11.3)	213(36.3)	307(52.4)
Doing BSE will make me worry about breast cancer	81(13.8)	364(62.1)	141(24.1)
The thought of BSE scares me	208(35.5)	335(57.2)	43(7.3)
BSE is embarrassing to me	86(14.7)	283(48.3)	217(37.0)
Doing BSE takes time	77(13.1)	295(50.3)	214(36.5)
BSE skills are difficult to learn	72(12.3)	243(41.5)	271(46.2)

Practice of breast self examination

Few of the discussants had ever heard breast self examination while few had ever practised breast self examination. Discussants across the groups who had ever performed BSE unanimously reported they do BSE while standing in front of a mirror, they will check the size of their breasts and the position of their nipples. After that, their left hand will be placed behind their head in other to check the breast on the left side and the other hand will be used to palpate the breast. The whole process is repeated while checking the breast on the right hand side.

Few discussant across the groups reported that they perform breast self examination before their menstrual period on monthly basis. Most of the discussants stated that they do BSE every day while few discussants across the groups recounted that they perform BSE annually.

Most of the discussants who reported that they had never perform BSE gave lack of information as the reason for not doing so while others identified time factor as a barrier to perform BSE.

Very few 92 (15.7%) of the respondents had ever practised BSE while 84.3% had never practised the behaviour. Thirty-two (5.5%) out of those who had ever practised BSE performed BSE monthly, 7.5% were performing BSE weekly while 2.6% performed BSE annually. Most (5.6%) of the respondents who had ever done BSE performed BSE a month prior to the period of this study while 2.2% of those who had ever done BSE could not remember the last time they performed BSE.

Pattern of breast self examination practice

Few (5.1%) of the respondents who had ever practised breast self examination reported that they perform BSE while standing up whereas 1.1% who claimed that they lie down while doing BSE. 5.1 % of these respondents stated that they normally put one hand behind their head while standing up in front of a mirror and they use their other hand to palpate the breast area including the armpit in other to check for lumps.

About 32 (5.5%) of the respondents who had ever practised BSE palpate their breast while performing BSE. This category claimed that they normally do this in the morning before taking their bath irrespective of their position. Very few (2.9%) of the respondents reported that they do BSE by taking a standing position while palpating the breast.

However, figure 4.5 shows the overall assessment of the respondents' practice of breast self examination. Eleven percent of the respondents who had ever practised BSE had good practice while others had poor practice of breast self examination. The mean practice score was 4.9 ± 2.2 out of a maximum score of 13 points. Respondents who had good practice do follow the right patterns in performing BSE. These involve performing BSE 5 or 6 days before their monthly menstrual flow; standing in front of mirror in order to examine the size of the breasts and the position of the nipples, place one of the hands behind the head and palpate the breast with the other hand in order to check out for lumps.

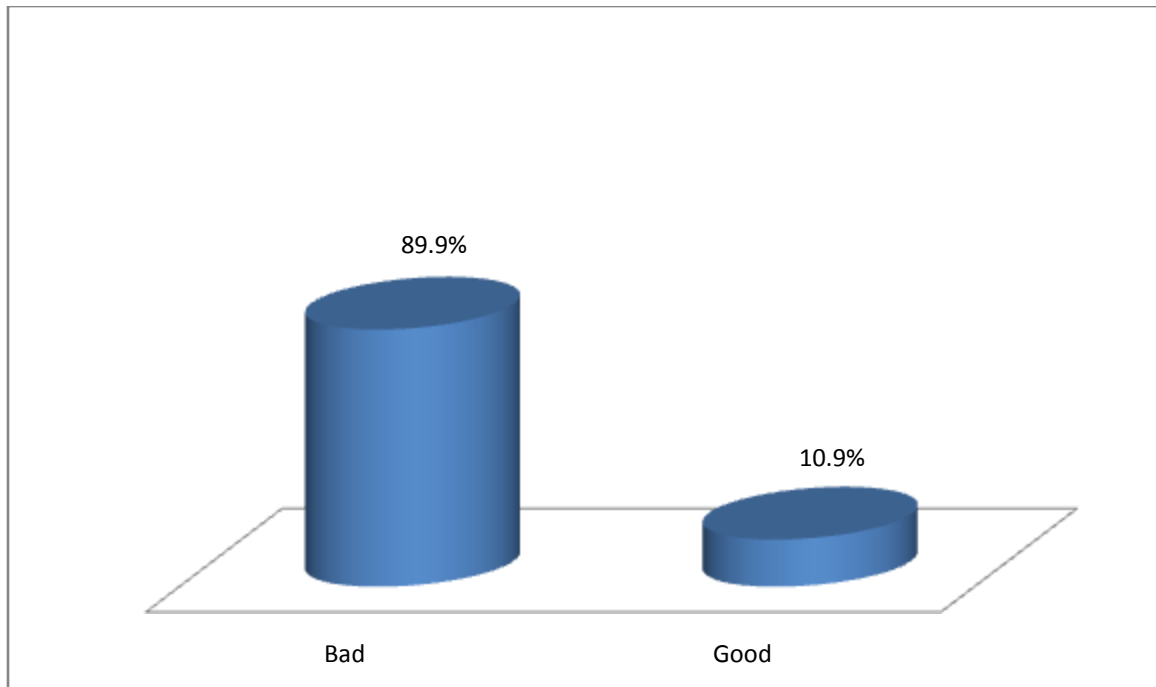


Figure 4.5: Respondents' practice of breast self examination

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Factors that influence the non-practice of BSE among the respondents

Amongst the respondents (84.3%) that had never practiced BSE, 57.3% gave the reason for not doing BSE to be lack of information while 2.6% recounted that doing BSE was emotionally fearsome. Few (14.9%) gave the reason for not doing breast self examination as not having the time to perform BSE, 13.3% stated their reason as not being able to examine their breast properly while 3.2% reported that they never believed that breast cancer exists (*details in table 4.6*). However, 90.1% of the respondents gave their consent to perform regular BSE after this study (*Figure 4.6*).

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Table 4.6: Respondents' reasons for not performing breast self examination

N = 497

Reasons for not performing BSE	Frequency	Percentage (%)
Lack of information	285	57.3
Forgetfulness	43	8.7
I don't have time	74	14.9
I am not able to examine my breast properly	66	13.3
I find doing BSE emotionally fearsome	13	2.6
I don't believe that breast cancer exists	16	3.2

Missing: Those who were performing BSE weekly and monthly.

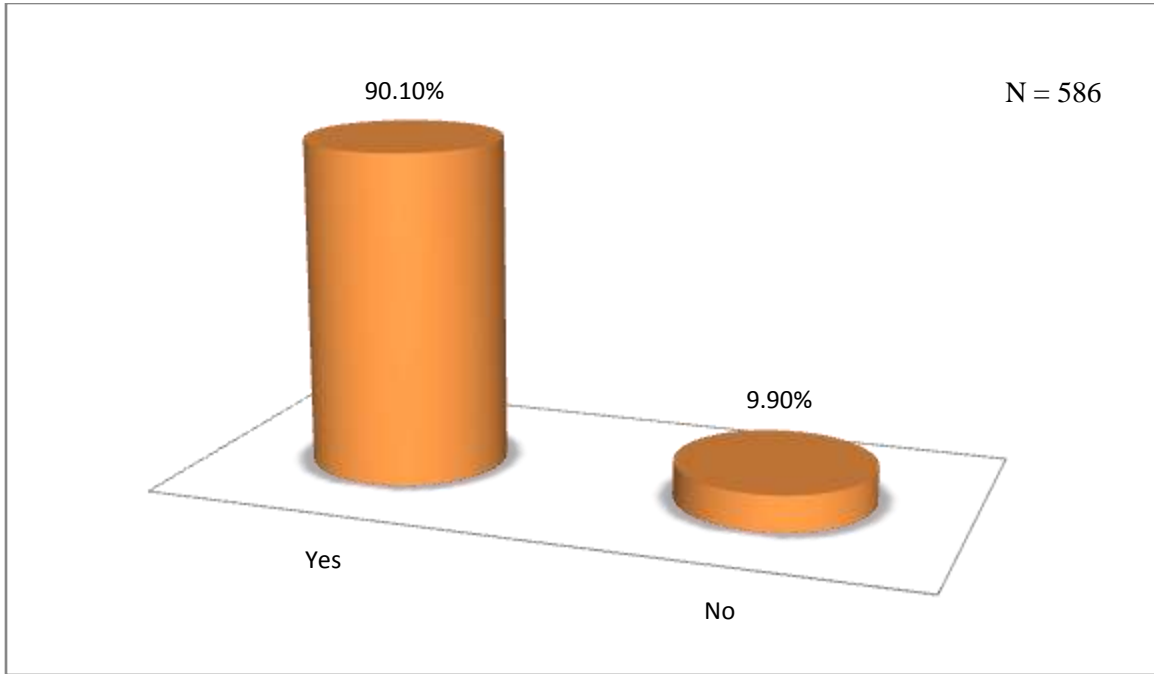


Figure 4.6: Respondents' intention to perform regular BSE after the study

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Research hypotheses

Table 4.7 shows the association between the respondents' breast cancer and BSE knowledge with some selected respondents' socio-demographic variables. The percentage distribution of respondents with poor and good knowledge among the two age groups: 15 – 19, 20-24 were 86.8% & 0.5%, 76.9% & 0.0% respectively, $X^2 = 11.767$, $p < 0.05$.

By and large, there was significant relationship between the knowledge of breast self examination and the respondents' age. Poor knowledge of breast cancer and breast self examination decreased by the level of education; the proportion of respondents who had primary, secondary and post secondary school education were 94.1%, 90.5%, 64.4% respectively. However, proportion of respondents with fair knowledge of breast cancer and BSE increased from 2.9% among those who had primary school education to 35.1% among those who had post secondary school education. Overall there was significant relationship between knowledge of BSE and level of education ($X^2 = 71.386$, $p < 0.05$). Hypothesis 1 is therefore rejected.

Table 4.7: Level of knowledge of BSE and BC by some selected demographic variables

Variables	Level of knowledge			p value
	Poor N (%)	Fair N (%)	Good N (%)	
N=586				
Age (years)				
15-19	321(86.8)	47(12.7)	2(0.5)	$X^2 = 11.767$ p = 0.003
20-24	166(76.9)	50(23.1)	0(0.0)	
Level of education				
Primary	32(94.1)	1(2.9)	1(2.9)	$X^2 = 71.386$ p = 0.000
Secondary	333(90.5)	35(9.5)	0(0.0)	
Post secondary	112(64.4)	61(35.1)	1(0.6)	
Arabic school	1(100.0)	0(0.0)	0(0.0)	
None	9(100.0)	0(0.0)	0(0.0)	
Family history of BC				
Yes	8(66.7)	4(33.3)	0(0.0)	$X^2 = 2.524$ p = 0.283
No	479(83.4)	93(16.2)	2(0.3)	

Table 4.8 shows the association between respondents' attitude towards breast self examination and some selected respondents' demographic variables. The percentage distributions of respondents with negative and positive attitude towards BSE among the two age groups: 15-19, 20-24 were 81.6% & 18.4%, 70.8% & 29.2% respectively, $X^2 = 9.145$, $p < 0.05$, $df = 1$.

Overall, there was significant relationship between the respondents' attitude towards breast self examination and the respondents' age. The proportion of respondents' attitude towards BSE decreased from 81.6% among those within the age group of 15 -19 to 70.8% among those within the age group of 20 -24 years. The fraction of respondents with negative and positive attitude towards BSE among those who had primary, secondary and post secondary education were 91.2% & 8.8%, 84.5% & 15.5% and 59.2% and 40.8% respectively. The proportion of respondents with positive attitude towards BSE increased by the level of education; the percentage distributions of respondents who had primary, secondary and post secondary education were 8.8%, 15.5%, 40.8% respectively ($X^2 = 50.582$, $df = 4$, $p < 0.05$). Overall, there was significant relationship between the respondents' attitude towards BSE and the respondents' level of education. Hypothesis 2 is therefore rejected.

Table 4.8: Respondents' attitude towards BSE by some selected demographic variables

Variables	Attitude grade		p value
	Negative N (%)	Positive N (%)	
Age (years)			
15-19	302 (81.6)	68 (18.4)	$X^2 = 9.145$
20-24	153 (70.8)	63 (29.2)	$p = 0.002$
Level of education			
Primary	31 (91.2)	3 (8.8)	$X^2 = 50.582$
Secondary	311 (84.5)	57 (15.5)	$p = 0.000$
Post secondary	103 (59.2)	71 (40.8)	
Arabic school	1 (0.0)	0 (0.0)	
None	9 (100.0)	0 (0.0)	

0 cells (0.0%) have expected count less than 5. The minimum expected count is 48.29

Table 4.9 shows the association between respondents' BSE practice and some selected demographic variables. The percentage distribution of respondents with good practice within the ages of 15 to 19 was 11.4% while the proportion of respondents with good practice within the ages of 20 to 24 was 22.7%. The proportion of good practice increased across the age group indicating a significant relationship between BSE practice and age of the respondents ($X^2 = 13.356$, $df = 1$, $p < 0.05$).

The proportions of poor and good practice of BSE among the respondents who had primary, secondary and post secondary school education were 94.1% & 5.9%, 91.6% & 8.4% and 66.7% & 33.3% respectively ($X^2 = 60.461$, $df = 4$, $p < 0.05$). The proportion of good practice increased from 5.9% for respondents who had primary school education to 33.3% for respondents with post secondary school education. However, the proportion of bad BSE practice decreased as respondents with primary school education had 94.1% and those with post secondary school education had 66.7%. Overall, there was significant relationship between the respondents' level of education and practice of breast self examination. Hypothesis 3 is however rejected.

Table 4.9: Respondents' grade of BSE practice by some selected demographic variables

Variables	Practice grade		p value
	Poor N (%)	Good N (%)	
Age group (years)			
15-19	328(88.6)	42(11.4)	$X^2 = 13.356$ $p = 0.000$
20-24	167(77.3)	49(22.7)	
Level of education			
Primary	32(94.1)	2(5.9)	$X^2 = 60.461$ $p = 0.000$
Secondary	337(91.6)	31(8.4)	
Post secondary	116(66.7)	58(33.3)	
Arabic school	1(100.0)	0(0.0)	
None	9(100.0)	0(0.0)	

0 cells (0.0%) have expected count less than 5. The minimum expected count is 33.54

CHAPTER FIVE

DISCUSSION, RECOMMENDATIONS AND CONCLUSION

This chapter deals with the discussion, recommendations and conclusion in accordance with objectives of the study and hypotheses, the main objective was to assess the knowledge, attitude and practice of breast self examination among female apprentices in Egbeda local government area of Oyo state, Nigeria.

It is appropriate to endow general population with information on BSE which mainly involves prompt reporting of breast symptoms which are considered as early detection messages for women of all ages, and to make women familiar with both the appearance and the feel of their breasts at an early age. Early diagnosis would influence early treatment and would yield a better survival rate (Cancer Research Campaign, 2002).

Socio-demographic characteristics

In this study, the respondents' age ranged from 15 to 24 years with the mean age of 18 years. The study was appropriate in this age group as most of them were youth who should find out more information on breast cancer and breast self-examination before they reach the age of common occurrence of the disease (breast cancer). Majority of the respondents were Yorubas, this revealed the dominance of Yorubas in the area where this study was conducted. Highest proportion (62.8%) of the respondents had secondary education; few had no education. Many studies reported similar demographic characteristics as shown in the present study (Salem and Hassan, 2007, Agboola *et al.*, 2009).

Knowledge of breast cancer and breast self examination

Most (88.2%) of the respondents surveyed had heard of breast cancer while few (45.6%) of the respondents had heard of breast self examination; the level of breast self examination awareness of the respondents may have been due to their level of education. In a related

study, it was found that the women who had tertiary education were more knowledgeable about breast self examination while those who had primary education were the least knowledgeable (Balogun and Owoaje, 2005).

The most mentioned medium through which the respondents heard about breast cancer and breast self examination was television. This shows the dominance and utility of this avenue in information dissemination in modern Nigerian communities, similar observation was reported in a study conducted within an Eastern state of Nigeria (Nwagbo and Akpala, 1996). The least reported source of information on breast cancer and breast self examination as reported by the respondents in the study was parents or guardians (6.4% and 7.1% respectively). This is one of the gaps existing in family life education as parents and care givers have no time to discuss pertinent health issues with their children. It might also be due to the fact that some of the parents have no information or knowledge on some of these topics and as such have little or nothing to discuss (Saludeen, Akande and Musa, 2009).

Knowledge of risk factors for breast cancer was very low as only 33.8%, 11.4%, 45.9 % and 7.0% regarded hereditary, aging, smoking/ingestion of alcohol and early onset of menstruation as risk factors for breast cancer respectively. This finding is however similar to the findings reported in the studies conducted by Oluwatosin *et al.*, 2006; Odusanya *et al.*, 2001; Jebbin and Adotey, 2004. As regards to the respondents' belief about breast cancer; very few (7%) of the respondents strongly agreed that breast cancer is a spiritual attack. This is almost similar to the finding gotten from a survey conducted by Onyije *et al.*, in which 5% reported that breast cancer is caused by evil spirit (Onyije *et al.*, 2010). Forty-two percent of the respondents agreed that breast cancer is common in female; therefore they are susceptible to breast cancer because they are female; this is contrary to the findings reported from previous study which was conducted in Bayelsa and River states where it was reported that 89% of the respondents agreed that breast cancer is common in female (Onyije *et al.*, 2010). Forty-six percent and fifteen percent of the respondents came to term that breast cancer is curable when detected early and that breast cancer can be inherited respectively; these findings corresponded with the findings in Benin 41% agreed that breast cancer is curable when detected early (Okobia *et al.*, 2006). Majority (73.9%) of the respondents answered

“yes” to clinical breast self examination and (43.9%) of the respondents answered “yes” to breast self examination as a means of early detection for breast cancer; this outcome may be due to the fact that the majority of the respondents believed that breast cancer screening can only be done at health centres because of lack of information on breast self examination. This finding is in contrast to the outcome of a study carried out among market women in Akinyele local government area of Oyo state as only 1.2% identified clinical breast examination and 6.4% regarded breast self examination as a means of early breast cancer detection (Oluwatosin *et al.*, 2006); the disparity between these two studies may be attributed to the educational status of the respondents involved in the two studies.

The findings of this study revealed that only 45.6% of the respondents had ever heard of breast self examination; this is to say that breast self examination awareness is still very low among this target population. Very few (16.6%) of those who had ever heard of breast self examination reported the correct time that breast self examination should be done monthly while 57.3% of those who had heard of breast self examination did not know how often this should be done. This is in contrast to the findings in a study conducted by Onyije *et al.* in 2010, where 49% of the respondents reported that breast self examination must be done monthly (Onyije *et al.*, 2010).

The overall assessment of breast cancer and breast self examination was unacceptably low as 83.1% of the respondents had poor knowledge; this was also observed in a survey conducted by Rasheed and Adetifa among women aged 15 years and above in twenty selected local government areas of Lagos state (Rasheed and Adetifa, 2009). This low knowledge of breast cancer and breast self examination explains less or no public awareness of this important issue in this society. Statistical analysis indicated that knowledge of breast cancer and breast self examination was significantly related to: age ($X^2 = 11.767$, $p = 0.003$) and level of education ($X^2 = 71.386$, $p = 0.000$). This same trend had been shown in a study conducted by Webster and Austoker that women with less formal education had inadequate knowledge about breast cancer that inversely influenced their breast cancer screening behaviours (Webster and Austoker, 2006).

Attitude towards breast self examination

Most (87.7%) of the respondents recounted that breast self examination is necessary. This trend was also observed in previous study where 98.5% of the respondents reported that breast self examination is necessary (Irirhe, 2010). This finding is also in line with the finding obtained from a study conducted by Agboola among female health workers in Sagamu as 86.1% of the respondents reported that breast self examination is necessary (Agboola *et al.*, 2009).

The respondents' responses to the attitudinal statements revealed their negative attitude towards breast self examination as 62.1%, 57.2%, 50.3%, 48.3%, 41.5% perceived that "doing breast self examination will make me worry about breast cancer", "the thought of breast cancer scares me", "breast self examination takes time", "breast self examination is embarrassing" and "breast self examination skills are difficult to learn" as the barriers in performing breast self examination respectively. This is in contrast to the findings obtained in a study that was carried out among female health workers in Olabisi Onabanjo University teaching hospital, Sagamu where few (0.1%) of the respondents recounted that breast self examination is embarrassing, 0.01% were scared of breast cancer (Agboola *et al.*, 2009).

The disparity observed between the two studies may be due to the fact the respondents in the latter study were health workers which were expected to have a positive attitude towards breast self examination; however, the findings in this present study implies that accurate information about breast cancer and breast self examination is lacking in this community.

Practice of breast self examination

Few (15.7%) of the respondents had ever practised breast self examination while 84.3% had never performed breast self examination. Higher figure was observed in the survey conducted among rural women in communities of Oyo state where 89.1% had never practised breast self examination; this is in contrast to the findings of the study conducted among nursing students in Lagos teaching hospital where 84.3% had ever practised breast self examination. The disparity observed in these findings may be due to the educational status of the respondents involved in the three studies. Few proportion (5.5%) of those who

practised breast self examination were doing it monthly; this is the recommended frequency for breast self examination (American Cancer Society, 2005). Less figure was observed in the survey carried out among rural women where none (0.0%) of the respondents was performing breast self examination monthly as recommended by American Cancer Society (Oluwatosin *et al.*, 2006), also 2.65% of the respondents surveyed in a study conducted in Egypt had ever practised breast self examination (Abdel-fattah, Zaki and Bassili, 2000). On the contrary, in a similar survey conducted in Bayelsa and River states; 49.0% were performing breast self examination monthly (Onyije *et al.*, 2010).

Only 5.6% of those who practised breast self examination performed it a month prior to this study while 2.2% could not remember the last time they performed breast self examination. A higher figure (35.7%) was observed in a similar study conducted among nursing students (Bassey, Nicholas, Modele, Adekunle and Adebayo, 2010).

Pattern of breast self examination practice

The findings of this study revealed that the respondents who were practicing BSE do perform BSE in different forms. Few (5.5%) preferred to perform breast self examination in the morning, 5.1% preferred standing up in front of a mirror while performing breast self examination and 1.9% preferred lying on the bed. This agrees with that of Jebbin *et al.*, Michael *et al.* (Jebbin *et al.*, 2004, Michael *et al.*, 2006), higher value was reported by Iurhe (Iurhe, 2010).

Although, 15.7% of the respondents claimed to practice breast self examination; 89.9% of those who practised had bad practice of breast self examination. Statistical analysis indicated that breast self examination practice was significantly related to: age ($X^2 = 13.356$, $p < 0.05$) and level of education ($X^2 = 60.461$, $p < 0.05$), this agrees with the findings obtained from a population-based survey carried out in Tehran, Iran (Ali Montazeri *et al.*, 2008).

Factors that influence the practice of BSE among the respondents

The few respondents that were practicing BSE gave prior information on BSE as the major factor that influenced them in performing BSE. Amongst the respondents (84.3%) that had

never practised breast self examination; 57.3% 14.9%, 13.3%, 8.7%, and 2.6% indicated lack of information, lack of time, failure to examine the breast properly, forgetfulness and breast self examination practice emotionally fearsome as the factors debarring them from practicing breast self examination. This same trend was also observed in a study conducted by Omolase, 2008. Highest proportion (90.1%) of the respondents indicated interest in knowing more about breast self examination and practicing it regularly. This trend was also reported in a study conducted by Iruhe, where 93.2% of the study population indicated their interest in knowing more about breast self examination (Iruhe, 2010).

Recommendations

Based on the findings in this study the under listed recommendations will be useful.

1. Individual as public health professional should develop effective breast health programs among female youth to help them acquire good health habits from their early stage of life.
2. Breast self examination should be integrated into the reproductive health curriculum across all schools as this will aid the dissemination of breast cancer prevention awareness with emphasis on BSE which will improve BSE practice among the younger ones.
3. Breast cancer messages should be reinforced by religious leaders emphasizing the role of Husbands in ensuring that their wives perform BSE monthly.
4. Integration of BSE into the community development programs should be encouraged; as this will equip the women with necessary BSE skills which will help in reinforcing BSE messages to their female children/wards.
5. BSE support groups should be put in place. These groups play important role in promoting awareness of breast cancer in low and middle-income countries, where illiteracy, religious beliefs, gender and social inequities often prevent women from accessing services and information as regards their health particularly on the importance of seeking treatment early if cancer is detected.
6. Beyond the Non-governmental bodies, Christian bodies and other civil society organizations, the community members can also make significant contributions to

- breast cancer screening with emphasis on breast self examination through talks, or training some of the target population as peer-educators who will later disseminate the information gathered to their peer.
7. Specific useful data such as breast cancer burden data and data on level of awareness that would provide useful information to Policy Makers, Public Health Agencies, Community-Based Organizations and Advocacy groups should be made available to help them make informed decisions on planning and developing specific breast cancer control policies and programs.

Conclusion

Breast cancer is the cancer that starts in the tissue of the breast. It is the most common malignancy causing deaths and cancer-related morbidity in women. The earliest presentation of breast cancer which is a painless breast lump is sometimes being taken for granted by women thus making treatment limited once they presented in the health centres.

Health behaviours that are formed at the early stage of life can enhance future health and have implications for the entire life course especially in the cancer-related cases. Developing good health behaviour towards breast cancer examination such as breast self examination which has been found to be cheap and non-invasive has great influence on the treatment and the survival rate of breast cancer. Therefore the knowledge, attitude and practice of breast self examination are very important.

The cross-sectional study design survey was conducted among 586 female apprentices to determine the knowledge attitude and practice of breast self examination. The following conclusions were drawn.

1. The knowledge of breast cancer and breast self examination was low among the respondents. Knowledge of breast self examination is very important in ensuring that women present breast cancer cases early at health care facilities for diagnosis and treatment.
2. The respondents' attitude toward breast self examination was highly unacceptable.
3. A large number of the respondents had never practised breast self examination.

4. Knowledge of breast cancer and breast self examination was significantly related to the respondents' age and their level of education.
5. The respondents' age and level of education were also found to be significantly related to the practice of breast self examination.

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APPENDIX A SAMPLE SIZE OUTPUT

Population survey or descriptive study
For simple random sampling, leave design effect and clusters equal to 1.

Population size:

Expected frequency:

Confidence limits:

Design effect:

Clusters:

Confidence Level	Cluster Size	Total Sample
80%	148	148
90%	242	242
95%	343	343
97%	419	419
99%	586	586
99.9%	941	941
99.99%	1295	1295

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APPENDIX B

FOCUS GROUP DISCUSSION GUIDE

Introduction

Good morning, afternoon or evening. We thank everyone for making out time to be here for this exercise. I am Ilesanmi Abimbola and my note taker is.....

We are from University College Hospital, Ibadan. We believe you are very knowledgeable about the practice and attitude of youth towards breast problem and BSE. In view of this we will you to share this knowledge and your view with us.

All the information you will give shall be used for research purpose which we believe will help in reducing high mortality rate caused by breast cancer. Please feel free to express your mind, in the process you are free to disagree with one another.

Before we proceed, I suggest that you introduce yourselves. In order not to miss out anything you are going to say during the course of this discussion we shall note down and record your views.

Now I shall proceed with the questions.

Knowledge about breast cancer and BSE

1. What are the common health problems which affect youth in your community?
2. Identify the major ones.
3. What are the common types of breast problems people or youth in this community have?
4. What are the causes of breast cancer?
5. Does breast cancer occur in stages? Mention the local names for each stage?
6. Is breast cancer curable?
7. What are the various ways by which you can prevent of breast cancer in your community?
8. What is BSE?
9. Have you ever of BSE? (If yes, at what age did you hear about BSE).

Attitude towards BSE

1. How do you feel towards BSE?
2. Do you prefer BSE as a means of early breast cancer detection?
3. Do you think BSE is necessary?

Practice of BSE

1. Have you heard about BSE?
2. Have you ever performed BSE?
3. Do you know how to perform BSE? (Appropriateness of skills will be assessed i.e. the steps involved).
4. Where and when should one perform BSE?
5. How often should one perform BSE?

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APPENDIX C

**QUESTIONNAIRE OF KNOWLEDGE, ATTITUDE AND PRACTICE OF BREAST
SELF EXAMINATION AMONG FEMALE APPRENTICES WITHIN EGBEDA
LOCAL GOVERNMENT AREA OF OYO STATE**

Dear Respondents,

I, Ilesanmi Abimbola, a student of the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan. The purpose of this study is to determine the Knowledge, Attitude and Practice of Breast Self Examination among female apprentices in Egbeda local government in Ibadan. It is believed that this study will increase the knowledge of the participants on BSE and it is hoped that it will encourage the practice of BSE as a way of preventing and or reducing the occurrence of the Breast Cancer. I wish to inform you that there is no right or wrong answers to the questions asked and that participation is voluntary. You have a right to withdraw at any given time if you choose to. Your identity, responses and opinions will be kept confidential and no name is required in filling this questionnaire. Participation in this study will take approximately 15-20 minutes which involves the completion of four-sectioned questionnaire. Your participation will be greatly appreciated.

Interviewer: if the respondent agrees to participate, please mark this box

Date:	
Name of Community:	
Ward :	
Identification code:	

Note: Please mark the appropriate options, thank you.

SECTION A: Socio-demographic information

1. Age.....(years)

2. Ethnic group (i) Yoruba (ii) Hausa (iii) Ibo (iv) Others [specify]
3. Religion (i) Christianity (ii) Islam (iii) Traditional (iv) Others [specify]
4. Marital status (i) Married (ii) Single (iii) Co – habitation (iv) Others [specify]
5. Level of Education (i) Primary (ii) Secondary (iii) Post secondary (iv) Arabic school (v) None
6. At what age did you start menstruation?
7. Have you ever used contraceptive before? (i) Yes (ii) No (If No, go to Q9)
8. If yes, which method? (i) Natural family planning method (ii) Barrier method (iii) Spermicidal method (iv) Oral pills (v) Injectables [2-3 months] (vi) Intra uterine contraceptive device (vii) Others [specify]
9. Have you ever been pregnant before? (i) Yes (ii)No [If No, go to Q11]
10. If yes, how many children did you have?
11. Does anyone in your family have Breast Cancer? (i) Yes (ii) No

SECTION B: Questions on knowledge

12. Have you ever heard of Breast Cancer? (i) Yes (ii) No (if No go to Q14).
13. If yes, through what means: (i) Television (ii) Radio (iii) Peers (iv) Parents or Guardians (v) Health Workers (vi) Public Awareness
14. Have you ever seen any woman with Breast Cancer? (i) Yes (ii) No
15. Breast Cancer can be caused by:

	CAUSES	True	False	Don't know
i.	Having multiple sexual partners.			
ii.	Using second hand brassieres.			
iii.	Having too many children.			
iv.	Putting money in the breast.			
v.	Hereditary.			
vi.	Aging.			
vii.	Smoking and ingestion of			

	alcohol.			
viii.	Women who starts menses early and stop late above 50 years.			
ix.	Using Contraceptives e.g. Condom			

16. Below are some statement about beliefs on breast cancer, state if you strongly agree, agree or disagree about them:

	Statements	Strongly agree	Agree	Disagree
i.	The belief is that breast cancer is a spiritual attack.			
ii.	Breast cancer is a disease that affects female and therefore it can affect any woman. [Susceptibility]			
iii.	Breast cancer has no cure.			
iv.	Breast cancer is curable when detected early			
v.	Breast cancer can be inherited			
vi.	Older women are more likely to get breast cancer than younger ones.			

17. How can breast cancer be detected? (i) Breast self examination (ii) Mammography (iii) Clinical breast examination (iv) Genetic testing (v) Blood examination (vi) Consultation with oracles

18. Have you ever heard of Breast Self Examination? (i) Yes (ii)No [if No, go to Q20].

19. If yes, through what means? (i) Television (ii) Radio (iii) Peers (iv) Parents or Guardians (v) Health Workers (vi) Public Awareness

20. If yes, breast self examination is best performed when:

		True	False	Don't know
i.	6 days before menstrual period.			
ii.	7 days after menstrual period.			
iii.	Daily before morning bath.			
iv.	Daily at night before bed time			
v.	Specific dates of the month.			

21. How often should BSE be performed? (i) Weekly (ii) Monthly (iii) Twice in one year (iv) Once in a year (v) I don't know

SECTION C: Attitude questions

22. Do you think BSE is necessary? (i) Yes (ii) No

23. The statements below are on perceived constraints in performing breast self examination, clearly state if you strongly agree, agree or disagree:

	Statements	Strongly agree	Agree	Disagree
i.	BSE is a funny act.			
ii.	I don't feel comfortable touching my breast.			
iii.	I don't feel comfortable when other people touch my breast.			
iv.	I don't have enough privacy to do breast self-examination.			
v.	Doing BSE will make me worry about breast cancer.			
vi.	The thought of breast cancer			

	scares me.			
vii.	BSE is embarrassing to me.			
viii.	Doing BSE takes time.			
ix.	BSE skills are difficult to learn.			

24. Do you prefer BSE as a means of early breast cancer detection? (i) Yes (ii) No (If Yes, go to Q24)

25. If No, will you prefer other methods?

Other methods of detecting breast cancer will be read out, please choose your preferred way of detecting breast cancer:

	Methods	Yes	No
i.	Mammography		
ii.	Clinical breast examination		
iii.	Genetic testing		
iv.	Blood Examination		
v.	Consultation with oracles		

SECTION D: Practice questions

26. Have you ever examined your breast to detect any abnormality? (i) Yes (ii) No

[If No, go to Q28].

If yes, list the steps involved in BSE

.....

27. If yes, how often do you perform this examination?

Weekly..... Monthly..... Annually.....

28. When last did you perform BSE?

29. Below are some statements on the perceived benefits of BSE, clearly state if you strongly agree, agree or disagree:

	Statements	Strongly agree	Agree	Disagree
i.	BSE allows early detection of breast lumps.			
ii.	BSE does not require money.			
iii.	When I do breast self-examination I feel good about myself.			
iv.	I prefer BSE to any other means detecting breast lumps because I feel embarrassed if another person touches my breast.			
v.	BSE is easy to learn.			
vi.	Women who examine their breast themselves are likely to detect breast cancer early.			

30. If you have never performed BSE indicate why?

The following reasons for not performing breast self examination will be read out please tick any of the options applicable to you. (i) Lack of information. (ii) Forgetfulness (iii) I don't have time. (iv) I am not able to examine my breast properly. (v) I find doing BSE emotionally fearsome. (vi) I don't believe that Breast Cancer exists.

31. In your own opinion what will you say your chances of getting Breast Cancer are?

.....

32. Do you intend to perform regular BSE after this study? (i) Yes (ii) No

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TELEGRAMS.....

TELEPHONE.....



MINISTRY OF HEALTH
DEPARTMENT OF PLANNING, RESEARCH & STATISTICS DIVISION
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: AD 13/479/163

Date: 26th October, 2011

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

Attention: Abimbola Ilesanmi.

Ethical Approval for the Implementation of Your Research Proposal in Oyo State.

This acknowledges the receipt of the corrected version of your Research Proposal titled "Knowledge, Attitude and Practice of Breast Self Examination among Female Apprentices in Egbeda Local Government Area, Ibadan".

The Committee has noted your compliance with all the ethical concerns raised in the initial review of the proposal. In the light of this, I am pleased to convey, to you, the approval of the committee for the implementation of the Research Proposal in Oyo State, Nigeria.

Please, note that the committee will monitor, closely, and follow up the implementation of the research study. However, the Ministry of Health would like to have a copy of the results and conclusions of the findings as this will help in policy making in the health sector.

Wishing you all the best.



Mrs V.A. Adepoju
Director, Planning, Research & Statistics
Secretary, Oyo State Research Ethical Review Committee.