FACTORS INFLUENCING THE PRACTICE OF BREAST SELF EXAMINATION AMONG YOUNG WOMEN IN IBADAN NORTH WEST LOCAL GOVERNMENT AREA, OYO STATE

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DEDICATION

This work is dedicated to God Almighty who gives wisdom and out of whose mouth comes knowledge and understanding.

ABSTRACT

Breast Cancer (BC) is the commonest cancer and a major cause of death among women worldwide. Breast Self Examination (BSE) is a screening technique for its early detection. However, not much is known about the adoption of BSE and the factors affecting it among Nigerian women. The objective of the study was to assess the level of knowledge, frequency and factors influencing the practice of BSE among young women in Ibadan North West Local Government Area, Oyo State.

The study was a descriptive cross-sectional survey. A four-stage random sampling technique was utilised for the study. The first stage was the selection of the LGA, second stage was the selection of wards, the third stage was the selection of households from the central point of the community utilizing the systematic sampling technique. Finally a respondent was selected from each household using a simple random sampling technique (balloting) among those eligible to participate in the study. A total of 370 respondents aged between 15 and 29 years participated in the study. A semi-structured questionnaire which included a 7-point knowledge scale of BSE was used to collect information on socio-demographic characteristics, perceived susceptibility to BC and practice of BSE (knowledge score of ≤ 3 was rated as poor and > 3 rated as good knowledge). Eight Focus Group Discussions (FGDs) (2 in each of EleyeleOja, Benjamin, Olopomewa and Eleyele roundabout) were conducted. Quantitative data were analysed using descriptive statistics and Chi square test while the FGD results were analysed using thematic approach.

Respondents' mean age was 22.5 ±3.9 years, 52.7% were students and 74.3% were single. Those who had primary, secondary and tertiary education were 7.3%, 49.5% and 43.2% respectively. Majority(52.2%)had heard about BSE and mean knowledge score of BSE was 2.6 ± 1.4. Only 15.4% of the respondents had good knowledge of BSE and about a third (32.2%) reportedly practiced BSE as at the time of the study. Reported frequency of BSE was monthly (14.3%), weekly (8.6%), daily (7.3%) and yearly (1.9%). Respondents with tertiary education (55.8%) were more likely to practise BSE compared to those with secondary (36.1%) and primary (5.0%) respectively ($p<0.05$). Only 13.2% of respondents perceived themselves to be susceptible to BC.

The perceived factors which hindered practice of BSE included lack of knowledge (48.6%), perception of non-vulnerability to breast cancer (19.2%) and lack of time (17.8%). The FGD participants unanimously agreed that low practice of BSE among the women was due to perception of non-vulnerability to BC.

Poor knowledge of breast self examination, perception of non vulnerability to breast cancer and poor practice of breast self examination were common among the respondents. A scale up of education of women is recommended for promoting adoption of Breast Self Examination.

KEYWORDS: Breast Cancer, Breast self-examination, Young women
WORD COUNT: 453

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CERTIFICATION

I certify that ADETONA, Adebanke carried out this research work in the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan, Nigeria under my supervision.

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GLOSSARY OF ABBREVIATIONS

ACS	American Cancer Society
AYA	Adolescents and Young Adults
BBD	Benign Breast Disease
BC	Breast Cancer
BMI	Body Mass Index
BRCA1	Breast Cancer 1
BRCA2	Breast Cancer 2
CBE	Clinical Breast Examination
DALYs	Daily Adjusted Life Years
ER	Estrogen Receptor
FBOs	Faith Based Organizations
PR	Progesterone Receptor
HER2	Human Epidermal Growth Factor Receptor 2
HRT	Hormone Replacement Therapy
IARC	International Agency for Research on Cancer
IGF-1	Insulin-like Growth Factor
MMA	Mean Menarcheal Age
NCI	National Cancer Institute
OC	Oral Contraceptive
PHC	Primary Health Care
PUFAs	Poly Unsaturated Fatty Acids
RTAs	Road Transport Accidents
SEER	Surveillance Epidemiology and End Results
TB	Tuberculosis
WHI	Women Health Initiative
WHO	World Health Organization

OPERATIONAL DEFINITION

Barrier: A problem, rule or situation that prevents someone from doing something (Oxford Advanced Learner's Dictionary)

Breast Cancer: is a kind of cancer that develops from the breast cells and usually starts off in the inner lining of milk ducts or the lobules that supply them with milk

Breast Self Examination: The act of examining one's breasts by one's self as a way to potentially detect breast cancer early.

Factors: One of several things that cause or influence something(Oxford Advanced Learner's Dictionary)

Knowledge: Information, understanding and skills gained through education or experience (Oxford Advanced Learner's Dictionary)

Intention to practice breast self examination: Strong interest and desire to perform breast self examination

Practice:A thing that is done regularly(Oxford Advanced Learner's Dictionary). In this study, 'practice' will be used interchangeably with 'perform'

Susceptibility: The state of being very likely to be influenced, harmed or affected by something. In this context, susceptibility is described as risk of developing breast cancer

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the Study

Cancers in all forms are responsible for about 12 percent of deaths throughout the world. Globally breast cancer is the most common malignant neoplasm among women (World Health Organization, 2006). In 2008 it was estimated that worldwide, 1.38 million women were diagnosed with breast cancer, accounting for around a tenth (10.9%) of all new cancers and nearly a quarter (23%) of all female cancer cases (International Agency for Research on Cancer, 2010). Female breast cancer incidence rates vary considerably, with the highest rates in Europe and the lowest rates in Africa and Asia (IARC, 2010).

Breast cancer is the most frequently diagnosed cancer and the leading cause of cancer relateddeath in females worldwide, accounting for 23% (1.38 million) of the total new cancer cases and 14% (458,400) of the total cancer deaths in 2008. About half the breast cancer cases and 60% of the deaths are estimated to occur in economically developing countries (WHO, 2008). In general, incidence rates are higher in Western and Northern Europe, Australia/New Zealand, and North America; intermediate in South America, the Carribeans, and Northern Africa; and low in sub-saharan Africa and Asia (Jemal, Cental, Desantis and Ward, 2010).

In Nigeria, breast cancer is becoming a public health issue. Data obtained from Ibadan Cancer Registry between 2009 and 2010 showed an estimated age standardized incidence rate of 52.0 per 100, 000 (Ibadan Population Based Cancer Registry,2010).

The prognosis of breast cancer is generally good, so that this cancer ranks as the fifth cause of death from all cancers overall, although it is still the leading cause of cancer mortality in women (the 411,000 annual deaths worldwide represent 14% of female cancer deaths). The very favourable survival of breast cancer cases in western countries—for example, 89% at 5 years in cases registered by the U.S. SEER programme in 1995–2000 (Ries, Eisner and Kosary, 2004) - is

ssalso in part a consequence of the presence of screening programmes and accounts for differences in individual mortality in developed and developing countries.

The combination of its high incidence and relatively good prognosis makes breast cancer the most prevalent cancer in the world today; there are an estimated 4.4 million women alive in whom breast cancer was diagnosed within the last 5 years (compared with just 1.4 million survivors— male and female—from lung cancer). According to the American Cancer Society, about 465,000 out of 1.3 million women that will be diagnosed with breast cancer annually worldwide will die from the disease. Breast cancer mortality rates are higher in developing countries as a result of late detection and diagnosis (Okobia, Clareann, Bunker, Okonofua and Osime, 2006; Adebamowo and Ajayi, 2000; Parkin et al, 2005). According to Globocan (2008), 58% of deaths from breast cancer occur in developing countries.

Screening methods such as clinical breast examination, mammography and breast self examination are effective in the early detection of breast cancer (Schoor, Moss, Otten, Donders, Paap, Den Heeten, Holland, Broeders and Verbeek, 2011). However, breast self examination is the screening method of interest in this study. Studies abound of women who discovered lumps and other abnormalities in their breasts while performing breast self examination (Lam, Chan, Chan, Mak, Chong, Leung and Tang, 2008; Thornton and Pillarisette, 2008). Given the high incidence and poor survival of those with breast cancer, it is important for women to examine their breasts regularly.

1.2 Problem Statement

Breast cancer is the most common cancer and the second principal cause of cancer deaths in women worldwide as well as in Nigeria (Adebamowo and Ajayi, 2000). The incidence of the disease appears to be rising faster in population groups that have hitherto enjoyed low incidence of the disease. This is especially so in developing countries (Okobia, 2006). In Nigeria, for instance, there is evidence that breast cancer incidence is on the increase.

Breast cancer is the most common cancer of women in Nigeria, accounting for 30.7% of all female cancers, others being cervical cancer (22.6%), cancer of the liver (4.6%), colorectal cancer (3.5%), non-hogkin lymphoma (3.3%) and ovarian cancer (3.0%) (Globocan, 2008). Estimated data from Globocan 2008 also show that Nigeria has the highest incidence rate (18, 935 per 100,000) of breast cancer when compared to other countries such as Ghana (2,519 per

100,000), Cote D'ivoire (1,426 per 100,000), Mali (934 per 100,000), Kenya (2660 per 100,000), Tunisia (1543 per 100,000), Egypt (12,621 per 100,000), South Africa (8645 per 100,000) and Namibia (151 per 100,000) (Globocan, 2008).

Inspite of the high incidence of breast cancer among Nigerian women, the practice of breast self examination which is effective in the early detection of breast cancer is low. For example, Gwarzo, Sabitu and Idris (2009) found from their study conducted among female undergraduate students of Ahmadu Bello University, Zaria, Nigeria aged 16 to 28 (an age group similar to those of the respondents in this study) that despite the fact that nearly three quarters of the respondents (87.7%) had heard of BSE, only 19.0% of them were performing this examination monthly. In another study conducted to determine knowledge, attitude and practice of Nigerian women towards breast cancer, it was reported that practice of breast self examination (BSE) was low; only 432 participants (43.2%) admitted to carrying out the procedure in the past year (Okobia et al., 2006). Similarly, another study carried out among female students of University of Ibadan showed low level of practice of BSE. Out of 228 students who participated in the study, only 25% (11) reportedly practised BSE regularly (Asuzu and Chioma, 2007).

Similarly a study conducted among female high school students in Turkey showed that a low percentage of students (6.7%) performed breast self examination monthly while 20% of the students reported that they performed BSE irregularly (Karayurt, Özmen and Çetinkaya 2008). Another study performed among a group of women in a rural area in western Turkey also confirmed low and irregular practice of BSE where 29.5% of the women stated they had examined themselves irregularly; only 10.2% stated that they performed BSE on a regular monthly basis **(**Dündar, Özmen**,** Öztürk' Haspolat**,** Akyıldız**,** ÇobanandÇakıroğlu,2006).

From the foregoing, there is an indication that the practice of BSE both in Nigeria and other parts of the world is low and irregular. Furthermore in Nigeria, a number of studies have been carried out in secondary, tertiary and health institutions. Few studies havebeen conducted on factors influencing knowledge and practice of breast self-examination among young women in community based settings. This study therefore intends to find out the factors influencing knowledge and practice of breast self-examination among young women in Eleyele, Ibadan North West Local Government area of Oyo State.

1.3 Justification

To date, the aetiology of breast cancer is uncertain and adequate primary prevention is not possible. Thus, early detection measures remain the first priority.

The role of breast self examination in the early diagnosis of breast cancer has been reported (Ali Abu-Salem, 2007). Breast self-examination (BSE) is one of the important steps for identifying breast tumours at an early stage. Despite the advent of modern screening methods, more than 90% of cases of breast cancer are detected by women themselves, stressing the importance of BSE (Parkin , Muir and Whelan, Gao, Ferlay and Powell, 1201992**)**. There are still yet more evidences that most of the early breast tumours are self discovered and the majority of the early self discoveries were made during breast self examination (Zonderhuis et al., 2008).

At the moment, mammography remains the best screening technique for the early detection of breast cancer but it is not routinely practised in Nigeria because of cost, high technology equipment and expertise required (Agboola, Deji-Agboola, Oritogun, Musa, Oyebadejo and Ayoade, 2009). This makes breast self examination the screening technique of choice in Nigeria since it is inexpensive, non-invasive, involves little physical energy, simple and does not depend on professional help.

The study group, (young women aged 15-29), was chosen because they fall into the category of people who can benefit from performing BSE by developing the habit at a young age and continuing it to adulthood. By doing the examination regularly, they get to know how their breasts normally look and feel and; they can more readily detect any signs or symptoms if a change occurs, such as development of a lump or swelling, skin irritation or dimpling, nipple pain or retraction, redness or scaliness of the nipple or breast skin, or a discharge other than breast milk. This is more likely to make them aware of their breast and lead to an earlier diagnosis of breast cancer. Early detection of breast cancer has been reported to play a leading role in reducing mortality rates and improving the patients' prognosis (Elmore, Armstrong, Lehman and Fletcher; 2005).

An understanding of the factors influencing knowledge and practice of BSE among young women at the community level in Ibadan North West LGA would be useful in instituting policy dialogue with lawmakers and subsequent planning of community based intervention programs for them. Furthermore, this study would provide baseline data for the LGA as the Primary Health

Coordinator had informed the author that plans were on the way to introduce BSE in the LGA. In addition, the study will provide answers to the following questions:

1.4 Research Questions

1. What is the level of knowledge of the respondents about breast self-examination?
2. What is the level of practice of breast self examination among the respondents?
3. What is their perceived seriousness/susceptibility of breast cancer?
4. What is the respondents'perception of breast self examination?
5. What are the motivating and inhibiting factors for performing breast self- examination?
6. Does any relationship exist between knowledge of breast self-examination and its practice?
7. What is the level of self efficacy of breast self examination among the respondents?

1.5.1 Goal

This study is designed to identify thefactors that influence the practice of breast self examination among young women in Ibadan North West Local Government Area, Oyo state.

1.5.2 Specific Objectives

The specific objectives were to

1. Assess the level of knowledge of breast self-examination among the respondents.
2. Assess the level of breast self-examination practice
3. Determine respondents' seriousness and susceptibility to breast cancer
4. Determine respondents' perception of breast self examination
5. Identify motivating and inhibiting factors for performing breast self-examination.
6. Determine the relationship between knowledge of breast self examination and its practice
7. To determine the level of self eficacy of breast self examination among the respondents

1.5.3 Research Hypotheses

H_o 1. There is no significant relationship between socio demographic factors of respondents (age, education, occupation and marital status) and knowledge of BSE.

H_o 2. There is no significant relationship between socio demographic factors of respondents (age, education, occupation and marital status) and practice of breast self-examination.

H_o 3. There is no significant relationship between knowledge of BSE and its practice.

CHAPTER TWO

2.0 LITERATURE REVIEW

The literature review is organized into the following sections:

The burden of breast cancer

Breast Cancer Risk Factors

Breast Self-Examination

Factors affecting practice of breast self examination

Treatment of breast cancer

2.1 The Burden of Breast Cancer

i) Incidence and Prevalence of Breast Cancer

Breast cancer is the most prevalent cancer worldwide with about 1 million new cases annually (Parkin et al., 2005). It is one of the leading causes of death in women aged 30 years and above. It reduces the life expectancy of the population at risk especially those between 31 and 50 years. Breast cancer is becoming more common worldwide. The incidence is rising more rapidly in populations that enjoyed a low incidence of the disease. According to the World Health Organization, breast cancer is responsible for 376,000 deaths a year (WHO, 1997). In Nigeria, it has overtaken cancer of the cervix to become the commonest malignancy in women (Adebamowo and Ajayi, 2000). The peak age incidence of breast cancer in Nigeria is reported to be between 45 and 50 years, in contrast to Europe and America where it was reported to be 65 to 70 years (Parkin et al., 1999; Anyanwu, 2000, Abudu, Banjo, Izegbu, Agboola, Anunobi and Musa,2007).

Breast cancer incidence varies widely within regions and countries, likely due to differences in racial and ethnic make-up, health resources, and lifestyle patterns. More than half of all cases occur in industrialized countries— about 361,000 in Europe (27.3% of cancers in women) and 230,000 in North America (31.3%). Incidence rates are high in most of the developed areas of the world (except for Japan, where breast cancer is third after colorectal cancer and stomach cancer). Within the United States, certain populations, such as white women in California and

Hawaiian women, have age-adjusted rates of 100 per 100,000 or higher (Parkin et al, 2005). In part, the high incidence in the more affluent world areas is likely due to the presence of screening programmes that detect early invasive cancers, some of which would otherwise have been diagnosed later or not at all (IARC, 2002). The incidence is more modest in Eastern Europe, South America, Southern Africa, and Western Asia, but breast cancer is still the most common cancer of women in these regions. In contrast, low rates (less than 30 per 100,000) are found in most African and Asian populations, although they are increasing; in some Asian populations, they are already the same as in Southern Europe, and in others (e.g., the Philippines), they are even higher. The incidence in the Jewish population of Israel is especially high (87.1 per 100,000). The lowest incidence internationally is in central Africa, where the age-standardized rate is 16.5 per 100,000 (IARC, 2002).

ii) Mortality: Breast cancer mortality is declining in the United States, as well as in certain other industrialized areas—such as Canada, Austria, Germany, and the United Kingdom— possibly due to increased utilization of mammographic screening, early detection of disease, and availability of improved therapies. The lowest breast cancer mortality rates are reported in Asian regions, leading researchers to speculate that dietary, cultural, and/or environmental factors might be implicated in the aetiology of the disease (Mettlin, 1999). Studies have shown that breast cancer accounts for a large proportion of cancer-related morbidity and mortality in all regions of the developing world (Brown and Goldie et al., 2006; Porter, 2008; Knaul et al., 2009). According to figures produced by Globocan in 2002, breast cancer is responsible for 16% of all cancer related deaths in Nigeria. Further, Adebamowo and Ajayi (2000) reported from their study that breast cancer had recently overtaken carcinoma of the cervix as the leading cause of cancer morbidity and mortality among Nigerian women.

iii) Socio-economic Impact:

Income level has also been shown to have an impact on absolute mortality figures and Disability Adjusted Life Years lost to breast cancer. Some researchers reported that, compared to cervical cancer, breast cancer accounts for a greater proportion of both deaths ands Disability Adjusted Life Years (DALYs) lost, on aggregate, for both low and middle income countries; and high income countries (Brown and Goldieet al., 2006; Lopez et al., 2006**)**. In low and middle income countries a higher total number of deaths occur with breast cancer accounting for 6.4% of

DALYs and 7.4% of deaths on average in lower-income regions, as compared to 7.5% and 9.7% in high-income countries (Brown ML, Goldie SJ, et al, 2006).

In all cases, the proportion of DALYs lost is substantially higher than from ovarian or uterine cancer. In Europe and Central Asia, as well as the Middle East and North Africa, breast cancer accounts for three to four times more DALYs lost than cervical cancer, and twice as many in East Asia and the Pacific. In Latin America and the Caribbean, DALYs lost from breast cancer also exceeds cervical cancers although the gap is not as large. Even in the poorest parts of the world -South Asia and sub-Saharan Africa- the proportion of DALYs lost from breast cancer is not very different from cervical cancer (Brown and Goldie et al., 2006).

(iv) Illness Behaviour With Respect To Breast Cancer Presentation

Breast cancer in the third world is characterized by late presentation, occurrence at relatively young ages and dismal mortality. Late presentation of patients at advanced stages when little or no benefit can be derived from any form of therapy is the hallmark of breast cancer in Nigerian women. In the third world and in African-Americans, breast cancer presents at advanced stages and with worse biological behaviour (Chiedozie, 1985; Velanovich, Yood, Bawle, Nathanson, Strand, Talpos, Szymanski and Lewis, 1999). Ezeome carried out a cross-sectional survey of consecutively presenting patients with breast cancer at the Surgical Oncology unit of the UNTH-E, Nigeria between June 1999 and May 2005 to explore delays and the factors that influence delays in presentation and treatment of breast cancer. Most (81.6%) reported first for treatment at a modern health facility while 17.5% used alternative practitioners first. Twenty-six percent (42) presented within a month of noticing the symptoms while 45.3% (72) delayed for 3 months or more. In contrast, 17% (18) were seen at the site of definitive treatment within 1 month of seeking help at the initial hospital while 73.4% had a delay of more than 3 months after the initial hospital contact. Institutional or physician-related delays were present in 44.5% of the cases while patient-related delays were present in 76.7% of cases (Ezeome, 2009). Several authors have summed various reasons for late presentation. They are ignorance, superstition, self-denial, fear of mastectomy and unavailability of treatment facilities (Velanovich et al., 1999; Lannin, Mathews, Mitchell and Swanson, 2002; Smith et al., 2006; Shavers, Harlan and Stevens, 2003). Furthermore, Chiedozie (1985) reported that, as in most largely painless diseases in

Nigeria, most of the patients presented either because the ministrations of the traditional healers ,(trado-medicalist) have failed or because the dirty, draining, and ulcerated breast lesions have made them social outcasts. Various studies have collated the experience of health institutions in Nigeria, and looked at breast cancer as it presents (Chidozie 1985; Anyanwu 2008, Ntekim, Nufu and Campbell, 2009).

A study carried out at the University of Benin Teaching Hospital, Benin, Nigeria in which 116 Nigerian women were seen over a 5-year period, 1974 to 1979 showed that the disease occurred one decade earlier in Nigerians and is mainly a disease of premenopausal and perimenopausal women. The most common histologioc finding was anaplasia with very unfavourable histological grade (Chiedozie, 1985). Another study carried out at the Radiotherapy department of the University College Hospital, Ibadan, Nigeria reviewed records of female patients treated for breast cancer from 2003 to 2006. Results showed that out of a total of 763 cases which were evaluated, stage 1 disease was diagnosed in 5 (2%) of the patients while 29 (13%) had stage 11 disease. Stages 111 and 1V were diagnosed in 102 (46%) and 85(39%) of the patients respectively (Ntekim, Nufu, and Campbell, 2009).

In yet another study carried out during the period 1998 to 2005 (8 years), delay from initial notice of symptoms to hospital presentation reportedly ranged from 5 days to 9 years. Twelve percent presented at 1 month and under, 41% between 1 and 6 months, 21% between 6 and 12 months, 17% between 12 and 24 months and 9% at more than 24 months. Three percent of the patients presented with Stage I, 11% in Stage IIA, 14% with Stage IIB, 32% with Stage IIIA, 36% with Stage IIIB and 4% with obvious distant metastasis in Stage IV (Anyanwu, 2008).

v) Survival

Recent data have shown that breast cancer survival rate has improved over time and inter-country survival differences are reducing (Berrino, De Angelis and Sant,2007; Verdecchia et al., 2007). Generally breast cancer survival rates are highest in northern Europe and lowest in Eastern Europe. Coleman et al. (2008) reported that five-year relative survival rates varied from over 80% in North America, Sweden, Japan, Australia and Finland to less than 60% in Brazil and Slovakia and below 40% in Algeria. Most European countries including Scotland, England, Ireland and Wales, had rates in the 70-79% range.

However, Breast cancer survival rate has also been found to vary by country (American Cancer Society). The five-year survival rate for the United States of America was reportedly 90.1% while that of Europe was 79% (Verdecchia, 2009). The United Kingdom has also been reported to have the lowest survival rates in Europe (Nicole, 2007). The lowest rates of breast cancer survival have been reported in Asia and Africa. In Australia, there was an increase in relative survival after diagnosis of breast cancer between 1982 to 1987 and 2000 to 2006, five-year relative survival increased from 72.6% to 88.3% respectively (National Breast and Ovarian Cancer Centre, 2009).

Survival rate in Nigeria has been reported to be a dismal 10% (Olopade, 2005). Furthermore, some researchers in Nigeria have also reported that the average lifespan of a diagnosed breast cancer patient in Nigeria has been estimated to range between 9.5 and 30 months. (Chiedozie 1985; Hassan 1992 and Anyanwu 2000).

2.2 Breast Cancer Risk Factors

(i) Age

Besides being female, age is the most important risk factor for breast cancer. The risk for breast cancer increases with age. The National Cancer Institute in America on the basis of Surveillance Epidemiology and End Result data, estimates the lifetime risk for a woman to develop breast cancer at 12% (Chlebowski et al., 2009). The 10-year risk for breast cancer is 1 in 69 for a woman at age 40 years, 1 in 42 at age 50 years, and 1 in 29 at age 60 years (National Cancer Institute, 2009). The American Cancer Society also reports that a woman's risk of developing breast cancer increases as she gets older and that about 1 out of 8 invasive breast cancers are found in women younger than 45, while about 2 out of 3 invasive breast cancers are found in women aged 55 or older (American Cancer Society, 2009).

From 2001 to 2005, the median age at diagnosis for breast cancer in US females was 61 years of age. Approximately 0.0% was diagnosed under age 20; 1.9% between 20 and 34; 10.6% between 35 and 44; 22.4% between 45 and 54; 23.3% between 55 and 64; 19.8% between 65 and 74; 16.5% between 75 and 84; and finally 5.5% in 85 years of age and above (Seer, 2008).

Based on data for 2006 in Australia, the risk that a woman would be diagnosed with breast cancer before the age of 75 years was calculated to be 1 in 11 and, before the age of 85 years, 1 in 9 (Australian Institute of Health and Welfare, 2009). The median age at diagnosis of breast cancer in Asian countries has been found to be lower than that of Australia and the United States of America. The incidence rates remain low, although increasing at a more rapid rate than in western countries, due to changes in the lifestyle and diet. The mean age at onset is younger than in the west, and unlike the west, the age-specific incidence decreases after the age of 50 years (Yip, 2009).

Several studies have been carried out to determine the relationship between age and the risk of developing breast cancer. For instance, a study carried out in Nigeria, reported that increasing age was positively associated with the risk of developing breast cancer (Adesunkanmi, Lawal, Adelusola and Durosimi, 2006**).** In this study, out of a total of 212 patients on hospital admission studied to determine the severity, pattern, outcome and challenges of breast cancer, results showed that 2% of the patients were below the age of 30 years, 42 (19%) between 30 and 39 years, 80 (37.7%) patients were between 40 and 49 years and only 13 patients (6%) were 70 years and above. Further, another study in Nigeria also reported that increasing age was positively associated with breast cancer risk. In this study, a retrospective study of the case files and histopathology reports of 149 patients who had biopsies of the breast from May 1996 to September 2004 was conducted. The study showed that below the age of 30 years, there was no malignancy detected in 85 breast biopsies. However as the age increased it was seen that less than one out of four biopsies were malignant when the patients were aged between 31 and 40 years, rising to one out of four biopsies for the 41-50 and 51-60 age-groups. The 61-70 age group yielded roughly one out of three while two out of three breast biopsies were malignant in the 71 to 80 age groups (Irabor et al., 2004). In yet another study, Adebamowo et al. (2003) also reported that increasing age was positively associated with breast cancer risk. The study was carried out in 4 University Teaching Hospitals in Midwestern and Southeastern Nigeria. Increasing age (greater than 20 years) was positively associated with increased breast cancer risk.

Breast cancer is the most frequently diagnosed cancer among young women 15 to 39 years of age (Bleyer, Barr, Hayes-Lattin, Thomas, Ellis and Anderson, 2008). Currently, breast cancer among this group accounts for approximately 14% of all young women's cancer diagnoses

and 7% of all breast cancer diagnoses (Bleyer et al., 2008, Gabriel and Domchek, 2009). Evidence suggests that young women's breast cancer may be etiologically as well as clinically distinct from breast cancer in older women (Gabriel et al., 2010). When breast cancer occurs in young women, it differs from that occurring in older women in several ways: a worse prognosis and more-aggressive phenotype, higher proportions of high-grade and later stage tumors, lower estrogen receptor (ER) positivity, and overexpression of human epidermal growth factor receptor 2 (HER2) (Bleyer et al, 2008; Gnerlich, Deshpande, Jeffe, Sweet, White and Margenthaler, 2009; Kurian, Fish, Shema and Clarke, 2010).

According to the Cancer Research UK, the estimated risk of developing breast cancer at birth up to age 29 is 1 in 2000. A recent study in the United States has also reported that breast cancer for all subtypes increases from age 15 to 39 years, an age group that comprises adolescence and adulthood (Keegan, DeRouen, Press, Kurian and Clarke, 2012). In Nigeria, Olu-Eddo and Ugiagbe (2012) carried out a retrospective study of breast masses in children and adolescents and reported that of the 2967 cases of breast lesions encountered during the 25-year period, 11.1% cases occurred in children and adolescents (age range 9-19 years). Another study which reviewed 763 female breast cancer cases seen at the radiotherapy department of the University College Hospital, Ibadan from 2003 to 2006 shows that 5.8% of the breast cancer cases seen were among women aged 21 to 25 years (Ntekim, Nufu and Campbell, 2009). Similarly, results from a cytopathological review of breast lesions in Ile-Ife, Nigeria showed that 24.3% of the 757 cases reviewed were found among women aged 20 to 29 years (Omoniyi-Esan, Osasan, Titiloye and Olasode, 2009).

Increasing age is a breast cancer risk factor for women of all ages. A recent report shows the age-specific probabilities of developing invasive breast cancer as follows: 1 in 1,681 at age 20, 1 in 232 at age 30, 1 in 69 at age 40, 1 in 42 at age 50, and 1 in 29 at age 60 and 1 in 27 at age 70 (American Cancer Society, 2011). According to Bleyer, Viny and Barr (2006), there are 2.7 times more patients diagnosed for all cancers (breast cancer inclusive) during the second 15 years of life than during the first 15 years.

At the turn of the millennium - in the year 2000 - nearly 21,400 persons in the United States from 15 to 29 years of age were diagnosed with invasive cancer. Because the incidence of cancer increases exponentially as a function of age, approximately half of the 15 to 29 year-old patients were 25 to 29 years of age. There was no incidence of breast cancer among the 15 to 19 age group. Two percent (2%) of all cancers put together were found in women aged 20-24 while 8% of all cancers were found in women aged 25 to 29 years (Bleyer et al., 2006).

Risk of breast cancer among young women does exist and increasing age is a risk factor among women.

(ii) Family History and Genetic Predisposition

Studies have consistently shown that women with a positive family history of breast cancer in a first-degree relative have a higher risk of developing breast cancer than women without a family history of the disease (Ottman, Pike and King, 1986; Slattery et al, 1993; Calle et al, 1993; Colditz, Willett and Hunter, 1993; Sellers, Potter and Rich, 1994; Pharoah, Day, Duffy, Easton and Ponder, 1997; Collaborative Group on Hormonal Factors in Breast Cancer, 2001). The increased risk is further elevated if two first-degree relatives have the disease (Hoover and Fraumeni, 1982; Ottman, Pike and King, 1986; Brinton, Sattin, Rubin, Webster, Byrne, Brinton, and Haile, 1991). Slattery et al. (1993) similarly reported that the risk is higher if more than one first-degree relative developed breast cancer and increases the younger the relative was at the time of diagnosis. Further, Claus, Risch and Thompson (1990) and Byrne, Brinton, Haile and Schairer (1991) reported that the highest risk is experienced by those whose relatives developed breast cancer early in their lives but risk may be elevated even if the relative was affected when she was more than 70 years of age (Colditz, Willett and Hunter, 1993). The risk of a woman having breast cancer if the nearest relative with breast cancer is a third degree relative has also been reported. According to the study, OR was 1.82 (95% Cl, 1.39 to 2.24) if the nearest relative with breast cancer is a third degree relative (Slattery et al; 1993). Also, a study carried out in Nigeria whichevaluated the potential risk factors for breast cancer showed that positive family history of BC in first- and second-degree relatives was associated with increased BC risk (Odds ratio (OR) = 8.07, 95% confidence interval (CI), 1.003, 64.95, p = 0.04) (Okobia et al, 2006).

Several studies have shown that there is clear evidence for the role of three genes (BRCA1, BRCA2, and TP53) as the etiologic basis for the greatly increased risk for breast cancer observed in some families (Hall, Lee, Newman, 1990, Malkin, Li, Strong, 1990, Miki, Swensen and Shattuck-Eidens, 1994; Wooster, Neuhausen and Mangion, 1994; Fitzgerald, MacDonald and Krainer, 1996). While a family history of breast cancer suggests an inherited influence on disease risk, BRCA1 or BRCA2 mutations account for only about 50% of familial breast cancer (Saslow, Boetes, Burke, Harms, Leach, Lehman, Morris, Pisano, Schnall, Sener, Smith, Warner, Yaffe, Andrews and Russell, 2007). It is estimated that 5%-10% of breast cancer cases result from inherited mutations or alterations in the breast cancer susceptibility genes, BRCA1 and BRCA2 (NCI, 2009) It has been reported that women with BRCA1 mutations are estimated to have a 57% risk for developing breast cancer by age 70; the corresponding risk for BRCA2 mutations is 49% (Chen and Parmigiani, 2007).

Inanotherresearch, it was indicated that a woman with certain known mutations in BRCA1 has a lifetime risk of 56 to 85 percent for breast cancer (Struewing, Hartge, Wacholder, Baker, Berlin and McAdams, 1997). Of women with breast cancer, a BRCA1 mutation has been found in 0.3 percent (one of 333) and of women in the general population, in 0.12 percent (one of 833) **(**Ford, Easton and Petro 1995). According to Warren and Devine, the risk of getting breast cancer for women who have BRCA1 and BRCA2 mutations is very high compared to women without these mutations.

A study carried out among young women with family history of breast cancer and their risk factors for benign breast disease (BBD), a well documented risk factor for breast cancer showed that young women whose mothers or aunts had BC were more likely to be diagnosed with BBD (odds ratio (OR), 2.34; P =0 .01), as were those with maternal BBD (OR, 1.59; P = .095) (Berkey, Tamimi, Rosner, Frazier and Colditz, 2011).

Several studies have reported that adolescents with family history of breast cancer who drink alcohol have an increased risk of developing breast cancer. For instance, a study conducted among adolescents with BC family history (mother, aunt, grandmother) who consumed alcohol (7 drinks/wk) doubled their BBD risk (OR, 2.28; P = .01), similar to those with maternal BBD (OR, 1.96; P = 0.02) (Berkey et al, 2011).

Another study also linked adolescents with family history of BC to alcohol consumption. Results showed that adolescent alcohol consumption was dose-dependently associated with an increased risk of proliferative BBD (hazard ratio = 1.15 per 10 g/day onsumption; 95% CI, 1.03–1.28) (Liu, Tamimi, Berkey, Willett, Collins, Schnitt, Connolly and Colditz, 2011).

Though it has been reported that part of the familial risk of breast cancer is mediated through the major susceptibility genes BRCA1 and BRCA2, very little is known of the prevalence of these mutations in African populations, although family history of breast cancer is also a risk factor in this setting (Rosenberg et al., 2002).

Though family history of breast cancer and genetic predisposition are known risk factors for developing breast cancer, the paucity of studies on this risk factor makes it difficult to conclude that it may be a significant risk factor among Nigerian women.

(iii) Age at menarche

Early age at menarche has been consistently associated with an increased risk of breast cancer. The estimated decrease in risk per five year delay in menarche is 22% (Garcia-Closas, Brinton and Lissowska, 2006). Kelsey (1993) also reported that each one year delay in the age at menarche was associated with a 5% decreased risk of breast cancer.

Breast cancer is a disease that is thought to be related to high lifetime exposure to the hormone estrogen. Estrogen is needed for normal reproductive development and estrogen levels in the body rise at menarche. The earlier a girl starts menstruating, the more menstrual cycles she will have, and the greater will be her exposure to estrogen during her childbearing years. Apter' Reinilä and Vihko (1989) investigated the endocrine features of girls with early menarche to the third decade of life and followed them up for 13 years. Results showed that the women who had had early menarche had higher serum oestradiol concentrations during the follicular phase of the menstrual cycle than the women who had had their menarche later (Apter et al., 1986). In yet another study by Apter (1983) to investigate the associations between age at menarche and the hormonal patternsof adolescent menstrual cycles, it was reported that girls with a menarcheal agebelow 12 years had higher serum estradiol than subjects withlater menarche. Other researchers have also reported that women who began menstruating at an early age (before age

12) had an increased risk of breast cancer (Gajalakshmi., 1991; Rookus et al., 1994). Further, Meshram et al. (2009) found that earlier age at menarche ≤ 12 years of age was found to be significantly associated with the risk of breast cancer in both pre menopausal and post menopausal women. Women who had menarche at early ages (≤12 years) were at increased risk compared with women who had menarche between 13-15 years of age (O.R. = 4.99, CI =2.26-10.99, p<0.001).

On the other hand, it has been shown that the risk of breast cancer is lower with decreasing age at menarche. For instance, Meshram et al. (2009) reported that menarche after 15 years of age was associated with reduced risk of breast cancer (O.R. = 0.33, CI =0.12- 0.87) (Meshram et al., 2009). Also, in a study carried out by La Vecchia et al (1992) in Italy to assess the role of age at menarche on breast cancer risk, the risk of breast cancer was lower in women whose menarche occurred at age 15 or over, but there was no evidence for the risk to increase with decreasing age at menarche below age 15. Compared with women with earlier menarche, the relative risk (RR) was 0.9 (95% confidence interval, CI 0.7-1.0) for those with menarche at age 15, 0.8 (95% CI 0.6-0.9) for menarche at 16, and 0.7 (95% CI 0.5-0.8) for menarche at age 17 or over (La Vecchia et al, 1992).

Average age at menarche is an important factor in determining breast cancer risk of a particular population. In Nigeria, there is paucity of data on national average age at menarche, but subset data do exist. For instance, a study by Moronkola and Uzuegbu (2006) conducted in Ibadan, Nigeria among student nurses reported that overall mean age at menarche was 14 years.Huo, Adebamowo, Ogundiran, Akang, Campbell, Adenipekun, Cummings, Fackenthal, Ademuyiwa, Ahsan and Olopade (2008) in a case- control study conducted in Ibadan reported that the majority of women had their menarche at or after age 15, and it was inversely associated with breast cancer risk (P=0.001). In the age-adjusted analysis, women with menarche at or after age 17 years showed about 40% lower risk than those with menarche at less than 17 years. Even though it has been reported that 30% of Nigerian women started menarche after age 16 (Huo et al., 2008), there is still the tendency of increased risk of breast cancer among Nigerian women as the protective effect offered by late menarche may be diminishing as women adopt a more western lifestyle (Huo et al.,2008). Further, Huo et al. (2008) estimated that risk increased by about 37% in women born in 1960s compared to those born in 1930s, due to change in

menarcheal age, parity, and duration of breastfeeding. Therefore, incidence in Nigerian population might have increased in the past three decades, and it is speculated that it will continue as women born after 1960s become older.

Age at menarche has been reported in several parts of the world (Anderson and Must, 2003, Anderson and Must, 2005, and Biro and Huang, 2006), including eastern, western and northern Nigeria (Fakeye, 1985; Modebe, 1987; Ikaraoha, Mbadiwe, Igwe, Allagua, Mezie, Iwo and Ofori 2005; Ofuga, 2007; Thomas, Okonofua and Chiboka, 1990). Several studies have reported age at menarche to have declined in developed countries (Anderson et al.,2003; Anderson et al., 2005) and this decline has also been noted in developing countries (Hosny , El-Ruby , Zaki , Agian , Zaki , El Gammal and Mazen, 2005 ; Hwang , Shin , Frongillo , Shin and Jo, 2003) . Today in the U.S., about 16 percent of girls enter puberty by the age of 7, and about 30 percent by the age of 8. A recent study reported that the number of girls entering puberty (defined by breast development) at these early ages has increased markedly between 1997 and 2010 (Biro, Galvez and Greenspan, 2010). For example, a study to determine whether average age at menarche declined in the United States during the past decadeshowed that average age at menarche declined from 12.53 years (95% confidence interval (CI) = 12.43 to 12.63 years) in 1988-1994 to 12.34 years (95% CI = 12.24 to 12.45 years) in 1999-2002 (Anderson et al.,2005).

Another author also reported that by the 1920s, average age at menarche in the U.S. had fallen to 13.3 and by 2002, it had reached 12.34 (Steingradber, 2007). In another study which assessed normal pubertal development in Egyptian girls to define normal, precocious and delayed puberty, mean menarcheal age (MMA) was 12.44 years - a mean menarcheal age earlier than those of previous Egyptian studies confirming a secular trend (Hosny et al.,2005). Another South Korean study also reported a decline in MMA from 16.8 to 12.7 years (Hwang et al, 2003). In Europe, in 1830, the average age at menarche was 17. Similarly in the 1980s in rural China, the average age at menarche was 17.3. Similar trends are occurring in other Western nations (McDowell, Brody and Hughes, 2007).

A decline in menarcheal age has also been indicated in young adults. In a study of reproductive factors and breast cancer risk among women aged 22 to 58, a decrease in risk with an increase in age at menarche was only observed among women aged 22 to 39 ($P < 0.0l$). (Clavel-Chapelon1,

Launoy, Auqueier, Gairard,, Brémond, Piana, Lansac and Renaud, 1995). In Nigeria, a study conducted to determine the age at menarche and growth status in adolescents in a rural area of Tarka, Wannune among 722 female students (aged 12-18 years) was collected in February 2009. Results showed mean and median menarcheal age were 13.02 and age 13.00 respectively (Goon**,** Toriola**,** Uever**,** Wuamand Toriola,2010). Another study conducted in a rural area in Rivers state, Nigeria also showed a statistically significant lower MMA in urban area girls, compared to their rural counterparts ((Ikaraoha et al., 2005)).Strong evidence exists from different parts of the world to suggest a decline in mean menarcheal age over the decades. In Nigeria, a few studies have shown decline in mean menarcheal age (Goon et al.,2005 and Ikaraoha et al., 2005). The increasing adoption of western lifestyle by adolescents and young women further leads to a decline in menarcheal age, thus increasing the risk of these groups of women to breast cancer.

(iv) Exercise

Exercise may reduce a girl's risk of breast cancer by decreasing the level of estrogen in her body, decreasing her weight, decreasing her insulin resistance, strengthening her immune system, or increasing her age at menarche. Generally, athletes have a later age at menarche compared to non-athletes. The relationship between physical activity and breast cancer incidence has been extensively studied. Most studies indicate that physically active women have a lower risk of developing breast cancer than inactive women; however, the amount of risk reduction achieved through physical activity varies widely (between 20 and 80 percent) (Lee and Oguma, 2006; Mac Tiernan, 2006).

According to Lee et al. (2006), although most evidence suggests that physical activity reduces breast cancer risk in both premenopausal and postmenopausal women (Lee et al., 2006); high levels of moderate and vigorous physical activity during adolescence may be especially protective. Although a lifetime of regular, vigorous activity is thought to be of greatest benefit, women who increase their physical activity after menopause may also experience a reduced risk compared with inactive women. Existing evidence shows a decreasing risk of breast cancer as the frequency and duration of physical activity increase. Most studies suggest that 30 to 60 minutes per day of moderate- to high-intensity physical activity is associated with a reduction in breast cancer risk (IARC, 2002; Lee et al., 2006).

Researchers have proposed several biological mechanisms to explain the relationship between physical activity and breast cancer development. Physical activity may prevent tumor development by lowering hormone levels, particularly in premenopausal women; lowering levels of insulin and insulin-like growth factor I (IGF-I), improving the immune response; and assisting with weight maintenance to avoid a high body mass and excess body fat (Mc Tiernan, 2006).

The protective effect of exercise on breast cancer risk in the women suggests that physical activity offers one modifiable lifestyle characteristic that may substantially reduce a woman's lifetime risk of breast cancer (Bernstein, Henderson, Hanisch, Sullivan-Halley and Ross, 2002). Physicalactivity could modify menstrual cycle patternsand alter the production of ovarian hormones and as such reducebreastcancerrisk among young women (aged 40 and younger) who regularly participated in physical exercise activities during their reproductive years. Results showed that the average number of hours spent in physical exercise activities per week from menarche to 1 year prior to the case patient's diagnosis was a significant predictor of reduced breast cancer risk (two-sided P for trend < 0.0001). The odds ratio (OR) of breast cancer among women who, on average, spent 3.8 or more hours per week participating in physical exercise activities was 0.42 (95% confidence limits (CLs) = 0.27, 0.64) relative to inactive women (Bernstein et al., 2002).

A recent study has suggested that women who exercise regularly between the ages of 12 and 35 have a significantly lower risk of breast cancer before menopause compared to young women who are less active. Researchers examined data from nearly 65,000 women who enrolled in the Nurses' Health Study II regarding their level of physical activity from age 12 onwards. The study found that those who were most physically active had a 23 percent lower risk of breast cancer before menopause than the least active women. High levels of physical activity from ages 12 to 22 appeared to contribute most strongly to lower breast cancer risk (Maruit, Hiwarka and Kulkarni, 2008).

High levels of moderate and vigorous physical activity during adolescence have been reported to be especially protective(Lee et al., 2006). Several studies have reported a decrease in breast cancer risk associated with regular exercise. Exercise may reduce a girl's risk of breast cancer by

decreasing the level of estrogen in her body, decreasing her weight, decreasing her insulin resistance, strengthening her immune system, or increasing her age at menarche.

A study which reviewed physical activity in adolescence and young adulthood; and breast cancer riskshows that physical activity in 12-24-year-old females significantly reduces risk of breast cancer. Each one-hour increase of recreational physical activity per week during adolescence was associated with a 3% (95% CI 0-6%) risk reduction(Lagerros, Hsieh and Hseir, 2004). Similarly, the study of Berstein et al (1994) showed that exercise had a protective effect on breast cancer among women aged 40 and younger. The average number of hours spent on physical exercises per week form menarche up to 1 year prior to the case patient's diagnosis was a significant predictor of reduced breast cancer risk. This result has also been supported by the study of Colditz et al. (2008) who concluded that physical activity during adolescence and young adult could significantly reduce early breast cancer.

Physical activity levels have been found to be decreasing among young people in many countries around the world resulting in a state where young people are not found to be sufficiently active in order to safeguard their present and future health and well-being. According to Kjønniksen**,** TorsheimandWold(2008), the transition from adolescence to adulthood is, on average, a period of decline in physical activity, but with the decline levelling off into adulthood. According to Odunaiya, Ayodele and Oguntibeju (2010), adolescents are not involved in adequate physical activities that could safeguard their present and future health and well-being. A number of studies have reported physical exercise among young people. For instance, Ucar et al (2000) indicated that Turkish schoolchildren who were in the 7-18 year old age group had a low level of physical activity and prevalence of physical inactivity increased in the 15-18 year old age group in both sexes.

Physical activity among young women in Nigeria has also been reported. For instance, a study which assessed physical activity levels of senior secondary school students in Ibadan, western Nigeria indicated that 38% of the participants engaged in low activity levels, 58.8% in moderate activity levels and 3.2% in high activity levels. Males appeared to be significantly more active

than females (Adeniyi, Okafor and Adeniyi, 2011). Another study conducted among students of Tai Solarin University of Education in Ijebu-Ode, Ogun State, Nigeria also showed that only 16.4% of female students engaged in physical exercise (Olusanya and Omotayo, 2011).

The low levels of physical activities prevailing among young women from previous studies suggest an increased risk of breast cancer among these groups of women.

v) Age at First Full Term Pregnancy

Late age at first full-term pregnancy has been consistently associated with increased risk of breast cancer, suggesting that prepregnancy breast tissue may be more vulnerable to carcinogenic agents than postpregnancy breast tissue (El-Bayoumy, 1992).The younger a woman is when she begins childbearing, the lower her risk of breast cancer. The relative risk of developing breast cancer is estimated to increase by 3% for each year of delay (Collaborative Group on Breast Cancer, 2002). For example, a woman who has her first baby at age 28 would have a 3% lower risk of breast cancer than a woman who had her first baby at 29, all other factors being equal. Similarly, a study carried out on reproductive factors and breast cancer risk reported that women in the highest age at first birth category had, on average, 27% higher risk of ER+PR+ cancer compared with women who were in the youngest age at first birth category (RR = 1.27, 95% CI = 1.07–1.50) (Ma, Bernstein, Ross and Ursin, 2006).

In addition to age at first full pregnancy being a risk factor for breast cancer, some studies have also shown that the number of full term pregnancies has a protective effect on developing breast cancer only if full term pregnancy occurs at a certain age. For instance, Handerson (1992) reported that the number of full term pregnancies is important but only if the first full term pregnancy occurred before the age of 30. Further, according to Albrektsen et al (2005), younger age at first-full term pregnancy (<30 years) and a greater number of pregnancies decreases the risk of breast cancer over the long term. However, there also appears to be a transient increase in breast cancer risk following a term pregnancy, particularly among women who have a first birth at older ages. Handerson (1992) also reported that a woman whose first full term pregnancy occurred before the age of 19 has 50% the risk of a nulliparous woman. If the first full term pregnancy occurred between the age of 30 and 34, the relative risk equals that of a nulliparous woman. If the first full term pregnancy occurs after the age of 35, the relative risk is greater than

that of a nulliparous woman (Handerson, 1992). Similarly, a Californian study that estimated the relative risk of breast cancer associated with age at first full term pregnancy showed that an increasing number of full-term pregnancies was associated with greater risk reduction for both breast CIS and invasive breast cancer (both *P* trend < 0.01). Women having four or more full-term pregnancies had a 31% lower breast CIS risk (RR = 0.69, 95% CI = 0.51 to 0.93) and 18% lower invasive breast cancer risk (RR = 0.82, 95% CI = 0.72 to 0.94) (Ma**,** Henderson**,** Sullivan-Halley**,** Lei Dua**,** Marshall**,** Ursin**,** Horn-Ross**,** Largent,De Deapen**,** Lacey,andBernstein**,** 2010).

First full term pregnancy at less than 20 years has been found to increase the risk of breast cancer.The risk factors for breast cancer among women in Midwestern and Southeastern Nigeria where fifty one women diagnosed with breast cancer had their age- and sex matched controls was evaluated (Okobia et al 2006). Results showed that age at first full term pregnancy >20 years and longer duration of reproductive period were associated with increased risk of breast cancer.

Adolescent pregnancy is formally defined as a pregnancy in a young woman who has not reached her 20th birthday when the pregnancy ends, regardless of whether the woman is married or is legally an adult. According to WHO, about 16 million women 15–19 years old give birth each year, about 11% of all births worldwide. Ninety-five per cent of these births occur in low- and middle-income countries. The average adolescent birth rate in middle income countries is more than twice as high as that in high-income countries, with the rate in low-income countries being five times as high. The proportion of births that take place during adolescence is about 2% in China, 18% in Latin America and the Caribbean and more than 50% in sub-Saharan Africa. Women who have their first full-term pregnancy at an early age have a decreased risk of developing breast cancer later in life. For example, in women who have a first full-term pregnancy before age 20, the risk of developing breast cancer is about half that of women whose first full-term pregnancy occurs after the age of 30 (Bernstein, 2002). Lanfranchi (2009) also reported that women who had children as adolescents have a decreased risk of breast cancer. A study carried out on the prevalence of adolescent pregnancy in Ganye local government area, Adamawa state, Nigeria showed that about 51% of the subjects had adolescent pregnancy (Madufuro and Ojebode, 2011).

It has been reported that women who had children as adolescents decreased their risk of breast cancer (Lanfranchi, 2009). According to WHO, Nigeria is one of the seven countries where half of all adolescent births occur.

Early age at first full term pregnancy may thus offer a protective effect on breast cancer risk among young women.

(vi) Age at Menopause

Late menopause increases the risk of breast cancer. Women who have undergone the menopause have a lower risk of breast cancer than pre-menopausal women of the same age and childbearing pattern (Collaborative Group On Hormonal Factors in Breast Cancer, 1997).The prolonged uninterrupted exposure to estrogens such as occurs in late menopause is considered a risk factor (American Cancer Society, 2009). The average age that women go through menopause is 51 years (Lisabeth et al, 2004). Exposure to estrogens after age 55 therefore increases the risk of breast cancer (Ma et al., 2006; Henderson et al., 2008). Risk increases by almost 3% for each year older at menopause (natural or induced by surgery), so that a woman who has the menopause at 55 rather than 45, has approximately 30% higher risk (Collaborative Group on Hormonal Factors in Breast Cancer, 1997).

Some studies found late menopause as risk factors for breast cancer (Ma et al.,2006; Henderson, Bernstein, Henderson, Kolonel and Pike2008). Pakseresht, Ingle1, Bahadur, Ramteke, Singh, Garg and Agarwal (2009) also studied the association of various risk factors with breast cancer among women in Delhi and reported that 52.9% of the cases and 47.9% of controls had attained menopause before the age of 45 years.

On the contrary, Al-Saad et al. (2009) in their study to determine the primary risk factors for breast cancer found that only 2.8% of the participants had late menopause and therefore concluded that there was a poor correlation between late menopause and developing breast cancer in this group of patients.

(vii) Personal History of Breast Cancer

A previous diagnosis of breast cancer raises the risk of developing a second primary breast cancer. Risk estimates vary from 1.4-fold (Volk and Pompe-Kim, 1997; Levi, Randimbison, Te and Vecchia, 2005). Al-Saad 2009 also reported that a personal history of previous breast cancer was a risk factor for cancer recurrence or the development of a new primary breast cancer. According to the study by Hiramanek (2004), the risk is 19% Women with breast cancer also are at risk of developing a second primary cancer. Soerjomataram, Louwman and Lemmens **(**2005) estimated from his study that the standardised incidence ratio (SIR) for developing a second primary breast cancer was significantly greater among women with a prior first primary breast cancer than in the general population (SIR=6.3, 95% CI 3.2-3.8). There was also increased risk for both premenopausal (SIR=3.5, 95% CI n/a) and postmenopausal women (SIR=2.6, 95% CI n/a).

Benign breast disease which is a generic term describing all non-malignant breast conditions, some of which carry an increased risk for breast cancer, has also been reported to lead to an increased risk of developing breast cancer. For example, Hartmann, Sellers, and Frost (2005) and Page, Schuyler, Dupont and Jensen (2003) reported that women were more likely to develop breast cancer in the same breast as the benign breast lesion than in the opposite breast. Further, women with proliferative breast disease without atypia have a two-fold increased risk, whilst those with atypical hyperplasia have a more than four-fold increased risk (Hartmann et al, 2005).

(viii) Bodyweight

Overweight and obesity, as measured by high body mass index (BMI), moderately increases the risk of postmenopausal breast cancer and is one of the few modifiable risk factors for breast cancer. The effect of obesity on breast cancer risk depends on a woman's menopausal status. Before menopause, obese women have a lower risk of developing breast cancer than do women of a healthy weight (Tretli, 1989; Yoo, Tajima and Park 2001; Cui et al, 2002 and Polednak, 2003). However, after menopause, obese women have 1.5 times the risk of women of a healthy weight (Friedenreich 2001; Cui et al., 2002; Petrelli, Calle, Rodriguez and Thun, 2002; Lahmann, Lissner, Gullberg, Olsson and Berglund, 2003). Obese women are also at increased risk of dying from breast cancer after menopause compared with lean women (Levitz and Zeleniuch-Jacquotte, 1995; Toniolo and McTiernan, 2000; Yoo et al., 2001 and Polednak 2003).

Scientists estimate that about 11,000 to 18,000 deaths per year from breast cancer in U.S. women over age 50 might be avoided if women could maintain a BMI under 25 throughout their adult lives (McTiernan, 2000). Obesity seems to increase the risk of breast cancer only among postmenopausal women who do not use menopausal hormones. Among women who use menopausal hormones, there is no significant difference in breast cancer risk between obese women and women of a healthy weight (Mayberry et al., 1992; Yoo et al., 2001; Cui et al., 2002 and Polednak, 2003). Both the increased risk of developing breast cancer and dying from it after menopause are believed to be due to increased levels of estrogen in obese women (Adams-Campbell, Kim and Dunston, 1996). Before menopause, the ovaries are the primary source of estrogen. However, oestrogen is also produced in fat tissue and, after menopause, when the ovaries stop producing hormones, fat tissue becomes the most important estrogen source (Lahmann et al., 2003). Estrogen levels in postmenopausal women are 50 to 100 percent higher among heavy versus lean women (Yoo et al., 2001). Oestrogen-sensitive tissues are therefore exposed to more oestrogen stimulation in heavy women, leading to a more rapid growth of oestrogen-responsive breast tumours.

Another factor related to the higher breast cancer death rates in obese women is the likelihood of detecting breast cancer at a later stage in obese women compared to lean women. Breast cancer is more likely to be detected at a later stage in obese women than in lean women. This is because the detection of a breast tumor is more difficult in obese women than lean women **(**Tretli, 1989**)**. Studies of obesity and breast cancer in minority women in the United States have been limited. There is some evidence that, among African American women, the risk associated with obesity may be absent or less than that of other populations (Trentham-Dietz, Newcomb and Egan et al, 2001; Cui et al, 2002; Wenten, Gilliland, Baumgartner and Samet , 2002).

However, a recent report showed that African American women who have a high BMI are more likely to have an advanced stage of breast cancer at diagnosis (Kaaks, Van Noord and Den Tonkelaar, 1998). Another report shows that obese Hispanic white women are twice as likely to develop breast cancer as non-obese Hispanics, but the researchers did not detect a difference in risk for obese Hispanic women before and after menopause (Männistö, Pietinen and Pyy et al., 1996). Weight gain during adulthood has been found to be the most consistent and strongest

predictor of breast cancer risk in studies in which it has been examined (Salazar-Martínez, Lazcano-Ponce and Lira-Lira, 2000; Friedenreich 2001; Yoo et al, 2001 and Polednak, 2003). The distribution of body fat may also affect breast cancer risk. Women with a large amount of abdominal fat have a greater breast cancer risk than those whose fat is distributed over the hips, buttocks, and lower extremities (Petrelli et al., 2002). Results from studies on the effect of abdominal fat are less consistent than studies on weight gain or BMI. Adult weight gain has been quite consistently associated witha greater risk for postmenopausal breast cancer (Ziegler, Hoover and Nomura, 1997; Huang, Hankinson and Colditz, 1997; Morimoto, White and Chen et al., 2002). Morimoto et al (2002) reported from his study carried out in United States that the elevation in risk associated with increasing BMI appeared to be most pronounced among younger postmenopausal women. Huang et al (1997) in his study carried out in China to examine body mass index (BMI) at the age of 18 yearsand at midlife and adult weight change in relation to breastcancer incidence and mortality reported that higher BMI at the age of 18 years wasassociated with lower breast cancer incidence both before andafter menopause and that weight gain after the age of 18 years was unrelatedto breast cancer incidence before menopause, but was positivelyassociated with incidence after menopause.

Ziegler et al. (1997) examined the roles of adult height,adiposity, and weight change in breast cancer aetiology. Results showed that recent adiposity (weight in the current decade of life/height$^{1.5}$),and recent weight change (between the current and precedingdecades of life) were strong predictors of breast cancer riskafter adjustment was made for accepted breast cancer risk factors. Based on the results of the Million Women Study, an estimated 7% of breast cancers in post-menopausal women in the UK are due to overweight and obesity (Reeves, Pirie and Beral, 2010). More than 100 epidemiological studies have examined the relationship between breast cancer and BMI, fat distribution, and weight gain at different ages (Friedenrich, 2001) These studies have shown that women who were overweight or obese had a 30% - 50% greater risk of postmenopausal breast cancer development than leaner women. In contrast, overweight and obesity are associated with a lower risk of breast cancer developing during the premenopausal years. The International Agency for Research on Cancer (IARC, 2002) estimates that 25% of breast cancer cases worldwide are the result of obesity and a sedentary lifestyle.

(ix) Parity

Parity is one of the modifiable risk factors for breast cancer. Al-Saad et al (2006) carried out a study to determine risk factors of breast cancer in Bahrain. Results showed that 9% of the patients were nulliparous. Similarly, Butt et al. (2012) examined parity and age at first childbirth, in relation to the risk of specific breast cancer subgroups in a prospective cohort. Nulliparity was associated with an overall increased risk of breast cancer, although not statistically significant (the relative risk was 1.39 with a 95% confidence interval of 0.92- 2.08). A study conducted by Huo et al. (2008) in which the relation between reproductive factors and breast cancer risk was examined in Nigeria however provided a different result. Among 819 breast cancer cases and 569 community controls that were studied between 1998 and 2006, parity was shown to be negatively associated with risk (P-trend=0.02) (Huo et al., 2008). Similarly,a study to investigate breast cancer rates and clinical stage related to age in the Kurdish region of Iraq showed that number of children (P = 0.08) were not significant predictors of breast cancer, although the number of children approached significance (Majid et al., 2006). Furthermore, Majid et al (2006) studied the relationship between multiparity and premenopausal breast cancer risk in Caucasian, African-American and Hispanic women. Results showed that multiparity did not modify the risk of premenopausal breast cancer in Chinese and Indians. In Malays however, there was a significant risk reduction with increasing parity (P trend 0.037). Malay women with one, two and three children had premenopausal breast cancer risks (HRadj) of 1.86 (1.2–3.0), 1.52 (1.1–2.2) and 0.87 (0.6–1.3) respectively compared to their Chinese counterparts (Verkooijen et al., 2006).

(x) Breastfeeding

Breastfeeding is one of the modifiable risk factors for breast cancer. Adebamowo et al. (2007) reported from his study of breast cancer risk among indigenous women in a case-control study in Nigeria that breast cancer risk decreased by 7% for every 12 months of breastfeeding. In like manner, another study showed that lactation had an apparent dose-dependent protective effect against breast cancer in Korean women. Breast cancer risk was found to decrease according to the total months of breast-feeding (P for trend=0.03). Average duration of breast-feeding of 11 to 12 months reduced risk of breast cancer by 54% compared with the duration of 1-4 months (odds ratio, 0.46; 95% confidence interval, 0.30-0.70) (Kim et al., 2007). Similar results of a hospital-based case control study carried out at Nahariya hospital (North of Israel) to assess the risk of

breast cancer in relation to breastfeeding history also showed that breastfeeding may have significant impact on intervention planning aimed towards breast cancer reduction among Israeli Jewish women. Results showed that short duration of lifetime breastfeeding was found to increase breast cancer risk. When women who had ever breastfed their infants were compared with females who had not, breastfeeding was found to be protective (OR of 0.39; 95% CI 0.26–0.59)**.** Similarly, another study showed that breast feeding has protective influence on breast cancer. This study was based on investigation which drew upon results from a dataset which belonged to a hospital based case-control study covering 303 breast cancer patients and 303 hospital controls. (Pourhoseingholi et al., 2008).

Another study also showed that negative history of breastfeeding was a significant risk factor for breast cancer. The study which investigated risk factors for breast cancer in Bandar Abbas, south Islamic Republic of Iran was carried out from April 2000 to March 2002 (Mahouri, Dehghani and Zare; 2007). Huo et al. (2008) in a study conducted in Ibadan, Nigeria reported that all but four parous women (0.3%) had breastfed their babies. The lifetime duration of breastfeeding was quite long, averaging 66 months (range: 1–294 months) with overall, only 1.4% for less than 6 months. There was a dose–response relationship between lifetime duration and risk (P=0.005). Mean duration of breastfeeding per child was also negatively associated with risk (P=0.007). Women who had breastfed at least 12 months per child had their risk decreased by one-third.

Despite documented benefits of breast-feeding (Duncan , Holberg , Wright , Martinez , and Taussig , 1993 and National Center for Health Statistics, Healthy People 2000), many adolescent mothers continue to bottle-feed their infants (Smith ,Mhango , Warren , Rochat and Huffman, 1982). In a study conducted to examine the breastfeeding experiences and related behaviours of adolescent mothers after discharge from the hospital, it was reported that over one half (60.3%) of the adolescent mothers breastfed for 2 months or longer (average 3.15 months). Only 22.6% breastfed for 6 months or more, and 39.6% breastfed for 1 month or less (Spear, 2006).

A population-based case-control study investigated whether breast-feeding is related to subsequent risk of breast cancer among young women diagnosed with breast cancer before age

36 living in the defined study areas. Results showed that risk of breast cancer fell with increasing duration of breast feeding (relative risk = 0.94 per three months' breast feeding; test for trend p = 0.026) and with number of babies breast fed (relative risk = 0.86; test for trend, p = 0.017)(United Kingdom National Case-Control Study Group, 1993).

Breastfeeding among young women may decrease their risk of breast cancer.

(xi) Clinical Factors

High breast tissue density: (a mammographic indicator of the amount of glandular tissue relative to fatty tissue in the breast) has been shown to be a strong independent risk factor for the development of breast cancer. In several studies, women with the highest levels of breast density were found to have a 4- to 6-fold increased risk of breast cancer, compared with women with the least dense breasts (Vacek et al., 2004, Barlow et al., 2006; Boyd et al., 2007).

High breast tissue density may be a breast cancer risk factor among adolescents. According to Boyd, Martin and Chavez (2009), growth and development in early life may impact breast density.For example, higher body weight during adolescence may be related to lower breast density (Samimi, Colditz, Baer and Tamimi, 2008). A new study has found that women who are older when they become pregnant also increase the risk of their daughters later developing breast cancer due to increased breast density, another established risk factor (Lope and Pérez-Gómez, 2011).

High bone mineral density: in postmenopausal women also has been recognized as a risk factor for breast cancer (Chen et al., 2007). Bone density is routinely measured to identify women at increased risk for osteoporosis (Chen et al., 2007), as high bone density indicates absence of osteoporosis, and may help determine a woman's risk for developing breast cancer.

(xii) Alcohol Consumption

Alcohol consumption is consistently associated with increased breast cancer risk (Terry and Fang, Zhang, Kabat, Britton, Susan, Teitelbaum, Neugut and Gammon, 2007). A recent review concluded that the most likely mechanism by which alcohol increases risk of breast cancer is by increasing oestrogen and androgen levels, thus, reducing alcohol intake may be a useful strategy for reducing breast cancer risk among regular consumers of alcohol. This increased risk is dose-

dependent and exists regardless of the type of alcoholic beverage consumed. Similarly, Longnecker (1994) reported that cohort studies with the longest follow-up times have revealed the strongest direct association between alcohol consumption and risk of breast cancer. A positive dose-response relationship was found when the analyses of 38 cohort and case-control studies were combined. Similarly, Boyle summed up the considerable old and new evidence that alcohol is a risk factor for breast cancer. Reports including the overview of the International Agency for Research on Cancer (SEER Statistics Facts Sheets, 2005), the Million Women Study (Hiramanek, 2004) and the Women's Health Study (McIntosh, Shaw and Evans et al., 2004) - indicate that risk is increased by approximately 10% for one drink per day (10 g) and that there is a dose-response curve that appears linear and unrelated to whether alcohol is from wine or not. In France, it was estimated that 9.4% of all breast cancers could be attributable to alcohol. A meta-analysis of more than 40 epidemiologic studies also suggests that the equivalent of 2 drinks a day (or 24g of alcohol) may increase breast cancer risk by 21%.

Further, a pooled analysis of six cohort studies: four in the United States and Canada, one in the Netherlands, and one in Sweden, showed that women whose alcohol consumption was more than 30 g per day (2-3 drinks) had an increased risk of breast cancer (RR=1.41, 95% CI 1.18-1.69) compared to that of non-drinkers (Smith-Warner et al. 1998). Similarly, the relative risks were 1.11 (95% CI 1.07-1.16), 1.24 (95% CI 1.15-1.34) and 1.38 (95% CI 1.23-1.55) for women whose daily alcohol consumption was one drink, two drinks, and three drinks, respectively, compared to non-drinkers. The relative risk of death from breast cancer was 2.10 (95% CI 1.18-3.72) in women who consumed alcohol over 60 g per day (about 5 drinks) compared to non-drinkers in the study of the American Cancer Society, (Garfinkel et al. 1988). Based on the meta-analysis of six case-control studies, women whose alcohol consumption was more than 40 g per day had an increased risk of breast cancer (OR 1.69, 95% CI 1.19-2.40) compared to that of non-drinkers (Howe et al. 1991).

The largest case-control studies, one in the United States, 6,662 breast cancer cases (Longnecker et al. 1995); and one in Italy, 2,402 cases La Vecchia et al. (1989) observed that high alcohol consumption was related to an increased risk of both premenopausal and postmenopausal breast cancer, whereas another study in the United States (3,498 cases) found no such relationship (Chu

and Anderson, 1989). The accumulated evidence shows that the strongest associations (about 2.5-fold risk) were found in countries where alcohol is a regular component of the diet and the consumption per capita high. Studies from the Mediterranean countries and France are good examples **(**LaVecchia et al., 1989; Richardson et al., 1989; Toniolo et al., 1989; Ferraroni et al., 1991; Katsouyanni et al., 1994).

Other studies have however shown inconsistent results regarding alcohol drinking and breast cancer risk. For instance, some reviewed epidemiological studies on alcohol drinking and breast cancer among the Japanese population found that there were inconsistent results regarding alcohol drinking and breast cancer risk among cohort studies (Chisato et al., 2007). Three cohort studies and eight case-control studies were identified. Out of the eight case-control studies, two studies showed a significantly increased risk among women who drank daily and who had higher intake of alcohol, respectively (Chisato et al., 2007). Although another study also reported that high alcohol consumption has been associated with increased risk of breast cancer in many countries and diverse cultures since 1977 (Willett and Stampfer 1987), it however also reported that the evidence is weak, and there may be a threshold below which alcohol has no noticeable effect.

Alcohol consumption has been identified as a likely risk factor for breast cancer among adolescents and young adults. Adolescents and young adults by virtue of their stage in development are likely to engage in drinking alcohol. According to World Health Organization, harmful drinking among young people is an increasing concern in many countries. Alcohol use starts at a young age: 14% of adolescent girls aged 13-15 years in low and middle income countries are reported to use alcohol (WHO, 2011). Some studies have documented alcohol consumption among adolescents in Nigeria. For instance, some of the findings from the study conducted in Ibadan North Local Government Area of Oyo state revealed that 32.5% consumed alcohol (Adenuga and Ijagbone, 2012). Another study reported the frequency of alcohol consumption among adolescents and young adults age 15 to 29 years. Results showed that 42% consumed alcohol on a daily basis (Onongha, 2012).

Alcohol consumption is a common behaviour among adolescents and it is therefore a likely risk factor for breast cancer.

(xiii) Diet

Some investigators examined particular internationaland intercultural dietary differences and proposed that dietsthat are low in fat and high in fruits, vegetables, fibre, andcomplex carbohydrates might lower risk for breast cancer (Marshall, Qu and Chen, 1992; Prentice, Kakar and Hursting, 1988). Although prospective observational studies in humans havegenerally not supported this, several experimental studies haveprovided support for an association between certain dietarypatterns and a lower risk for breast cancer (Welsch, 1992). Human experimental evidence is available on the effects of low-fatand high-fibre diets on some breast cancer biomarkers. The effectof a low-fat, high vegetable and fruit diet on mammographicdensity, a breast cancer biomarker, was tested in a randomizedclinical trial in 817 women (Marshall et al., 1992). Women randomized to the dietarm experienced a 6.1% decrease in mammographic density over2 years compared with a 2.1% decrease in controls.

Dietary influences have been proposed and examined, and recent research suggests that low-fat diets may significantly decrease the risk of breast cancer as well as the recurrence of breast cancer. Another study showed no contribution of dietary fat intake to the incidence of breast cancer in over 300,000 women (Hunter, Spiegelman and Adami, 1996). A randomized controlled study of the consequences of a low-fat diet, the Women's Health Initiative, failed to show a statistically significant reduction in breast cancer incidence in the group assigned to a low-fat diet, although the authors did find evidence of a benefit in the subgoup of women who followed the low-fat diet in a strict manner (Prentice, Caan and Chlebowski, 2006). A prospective cohort study, the Nurses' Health Study II, found increased breast cancer incidence in premenopausal women only, with higher intake of animal fat, but not vegetable fat. Taken as a whole, these results point to a possible association between dietary fat intake and breast cancer incidence, though these interactions are hard to measure in large groups of women.

One study from 2008 has shown that a very high consumption of omega-6polyunsaturated fatty acids (PUFAs), which are found in most types of vegetable oil (e.g. soybean oil, corn oil - the

most consumed in USA, sunflower oil, etc.), may increase the likelihood that postmenopausal women will develop breast cancer(Sonestedt, Ericson, Gullberg, Skog, Olsson and Wirfält, 2008).

Globally, there has been an increased intake of energy-dense foods that are high in fats, salts and sugars but low in vitamins, minerals and other micronutrients (WHO, 2011). Unhealthy dietary practices have also been reported among adolescents and young adults (Ojofeitimi, Olugbenga-Bello, Adekanle and Adeomi, 2011; Kelishadi, Ardalan, Gheiratmand, Gouya, Razaghi, Delavari, Majdzadeh,d Ramin Heshmat, Motaghian, Barekati, Mahmoud-Arabi and Riazi, 2006).

Early life exposures, including diet, have been implicated in the etiology of breast cancer. Frazier**,** Ryan**,** Rockett**,** Willettand Colditz (2004)reported apossible association of elements of adolescent diet with risk of breast cancer. Rates of breast cancer among Asian immigrants to the United States do not approach those of US white women until the second or third generation, suggesting that exposures during childhood and adolescence are important in establishing a higher risk of breast cancer (Ziegler, Hoover, Pike, Hildesheim, Nomura, West, Wu-Williams, Kolonel , Horn-Ross and Rosenthal, 1993). Norwegian women who were adolescents during World War II, when average caloric intake decreased by 22%, had a reduced incidence of breast cancer, suggesting that energy restriction might affect risk (Tretli and Gaard, 1996).

A number of studies have been conducted on adolescent diet and risk of breast cancer. For instance, a study which examined associations between components of adolescent diet and risk of proliferative benign breast disease (BBD), a marker for breast cancer showed that vegetable fat, vitamin E, and fibre intake during adolescence were inversely associated with risk of proliferative BBD in this population (Baer et al., 2003). A similar result was found by Potischman et al. (1998) who conducted a case-control study among 1647 cases who had been diagnosed with breast cancer at less than 45 years of age. It was reported that increased consumption of high-fat meats was associated with an increased risk of breast cancer, whereas increased consumption of fruits and vegetables was associated with a non-significant but consistent decrease in risk of breast cancer.

In a nested case-control study conducted among participants in the Nurses' Health Study to determine diet during high school, it was shown that women who had, during adolescence, a higher consumption of eggs, vegetable fat and fibre had a lower risk of breast cancer, whereas risk of breast cancer was increased among women who consumed more butter.

Ojofeitimi, Olugbenga-Bello, Adekanle and Adeomi (2011) studied the prevalence of obesity among adolescent females in private and public schools in the Olorunda Local Government Area of Osun State, Nigeria. It was found that the dietary practice of the majority of the girls from private schools (60.2%) was unhealthy. Similarly, Olumakaiye and Ajayi (2007) also concluded from their study that the food choice of the adolescents in the study area was based more on taste preference than the nutritional contents. Further, Kelishadi, Ardalan, Gheiratmand, Gouya, Razaghi, Delavari, Majdzadeh, Ramin Heshmat, Motaghian, Barekati, Mahmoud-Arabi and Riazi (2006) reported from their study that unhealthy lifestyles made Iranian young people prone to chronic diseases later in life. Results showed that the most commonly consumed food were hydrogenated solid fats, white bread and deep fried foods; and 29.1% of female students consume fast foods several times a week.

Given that adolescents and young adults engage in unhealthy dietary practices, diet may be a risk factor for breast cancer.

(xiv) Oral Contraceptives

Recent use of oral contraceptives may slightly increase the risk of breast cancer. However, women who have stopped using oral contraceptives for 10 years or more have the same risk as women who never used the pill. Recent use of menopausal hormones (sometimes referred to as hormone replacement therapy (HRT) or menopausal hormone therapy) with combined oestrogen and progestin has been shown to increase breast cancer risk, with higher risk associated with longer use (Heiss et al., 2008; Calle et al., 2009). However, the increased risk appears to diminish within 5 years of discontinuation of hormone use (Calle et al., 2009). The risk associated with oral contraceptive use in women is similar regardless of a woman's family history, ethnic origin, years of education, age at menarche, height, menopausal status, weight, and alcohol consumption.

Cancers diagnosed in women who have used OCs tend to be less clinically advanced than those detected in never-users (Collaborative Group on Hormonal Factors in Breast Cancer, 2006). OC users are generally younger women whose breast cancer risk is comparatively low, so the small excess risk in current users will result in a relatively small number of additional cases.

The formulation of OCs has changed considerably since use became widespread in the 1960s but current evidence suggests that this does not affect risk (Collaborative Group on Hormonal Factors in Breast Cancer and hormonal contraceptives,1996). The risk associated with oral contraceptive use in women is similar regardless of a woman's family history, ethnic origin, years of education, age at menarche, height, menopausal status, weight, and alcohol consumption.

Women currently taking HRT have a 66% increased risk of breast cancer compared to non-users (Collaborative Group on Hormonal Factors in Breast Cancer and hormone replacement therapy: 1997). The risk increase is temporary, with risk returning to that of a never-user within five years. A woman's BMI modifies the effect of HRT, with a stronger effect in women with a lower BMI (Collaborative Group on Hormonal Factors in Breast Cancer Breast cancer and hormone replacement therapy, 1997; Beral, 2003). The risk is larger for use of oestrogen-progestagen therapy compared to oestrogen-only (Reeves, Beral, Green, Gathani,, Bull, Schairer, Lubin, Troisi, Sturgeon and Brinton, 2000; Magnussen,, Baron, Correia, Bergstrom, Adami and Persson, 1999; Ross, Paganini-Hill, Wan and Mike, 2003).

In the Million Women Study, current users of oestrogen-progestagen therapy had twice the risk of never-users, while users of oestrogen-only or tibolone had similar risk increases (Beral, 2003). It was estimated in 2003, that 20,000 extra breast cancer cases had occurred among women aged 50-64 in the UK over the previous decade as a result of HRT use and three-quarters (15,000) of these additional breast cancers are due to the use of oestrogen-progestagen HRT (Beral, 2003).

Studies of oral contraceptive use and breast cancer risk have focused on adult women who started taking birth control pills when they were in their 20s. Today, the pill is a much more popular form of birth control among teenagers. Since there are natural hormonal differences between adolescent girls and adult women, the use of the pill in teenagers deserves special

consideration. Indeed, a couple of studies have reported that there might be a slight increase in risk associated with early use of oral contraceptives.

A case-control study in South Africa found that combined oral contraceptives may result in a small increase in risk, confined to women below the age of 25 years, but that injectable progesterone contraceptives did not increase risk (Shapiro et al., 2000).

The main results of a large case-control study of breast cancer in young women indicated an increased risk of breast cancer associated with increasing duration of use of combined type of oral contraceptive (United Kingdom National Case-Control Study Group, 1989 and United Kingdom National Case-Control Study Group, 1990).

Oral contraceptive use has also been reported among adolescents and young adults in Nigeria. Nworah, Sunday, Joseph, Monday and Josephat (2009) reported that Postinor was the commonest emergency contraceptive mentioned by the students who know about emergency contraceptives (45.0%) followed by oral contraceptive pills (33.3%). Similarly, a study conducted by Adebamowo et al. (1999) in Nigeria to determine breast cancer risk factors among Nigerian women reported patients' use of oral contraceptives. Records obtained by the author from the government owned Primary Health Care facility in the study area indicated that oral contraceptive use among the women is very low. Only 29 women were documented to have adopted the use of oral contraceptives by the facility in 2009. However, interviews held with key officials of the facility revealed that though records show low use of oral contraceptives, most of the women still prefer to patronize patent medicine sellers and quacks for their oral contraceptives, reporting only to the clinic when the contraceptives fail or have adverse effects on their body. The reasons for this are not farfetched. The women feel shy and embarrassed to discuss their need for oral contraceptives with professionals but are more comfortable discussing them with friends who would advise them to buy from patent medicine stores and quacks.

Though, a few studies (Arowojolu and Adekunle, 2000; Ikeme et al., 2005; Nworah et al., 2010; Bello et al., 2009) have shown that usage of oral contraceptives among young women is poor, risk of breast cancer still exists among the users.

2.3 Breast Self Examination

Breast Self Examination is the self-practice of using the pad of the three middle fingers to feel for lumps or thickening around the breast as a method to potentially detect breast cancer early. Breast self-examination (BSE) is a painless, cost-free and easy physical examination that allows premature detection of a neoplasia, enabling efficient therapeutical action, all of which may extend the patient's life, avoid future and severe physical sequelae as well as emotional, social and economic problems (NCI, 2008). This examination is also extremely important so the woman is able to have better knowledge of her breasts' typical aspects, such as shape, size, skin and nipple texture; all of which will greatly assist in the early diagnosis of any abnormality that may arise and thus, lead to premature diagnosis, and maybe avoiding breast mutilation.

BSE has enabled women to detect breast tumours of less than 1cm in diameter so widespread use of BSE could have an important role in the early detection of the disease, and hence its management. This is especially so as there is inadequate understanding of its causes to enable the development of any method of primary prevention. In spite of significant improvement in the treatment of breast cancer, treatment to cure all cases is yet to be developed (Abdelrahman, 2006)

Early detection of breast cancer plays an important role in reducing its morbidity and mortality. Theoretically, a 95% survival rate could be achieved if this cancer was diagnosed at an early stage. BSE, mammography, and clinical breast examination are considered as screening methods for early detection of breast cancer (Avci, 2008). Breast self examination is a safe, simple and cost free process which can be carried out by women themselves and enables them to detect lumps and other abnormalities in the breast. It is recommended for women from age 20 and above. Mammography on the other hand is an expensive process which uses low energy x-rays (usually around 30 kVp) to examine the breast. Unlike breast self examination, mammography is effective in women aged 40 years and above.

Clinical breast self examination is a physical examination of the breast done by a health professional in order to detect a lump or any other abnormality in the breast. Although there is controversy surrounding the efficacy of BSE in countries where mammography and clinical breast examinations are readily available, elsewhere BSE remains a cost-effective method to

detect breast cancer. Despite the relative benefits of BSE, its application remains low (Canbulat, 2008). For example, a study conducted on breast self-examination among health professionals in Nigeria at the Abia State University Teaching Hospital, Aba, Abia State showed low practice of BSE. Out of 94 respondents, 79 (84%) reportedly practised breast self-examination, but the number of those that examined their breasts monthly was only 45 (47.9%). Similarly, a study reported that despite the fact that nearly three quarter of respondents (87.7%) who were female students at Ahmadu Bello University Zaria had heard of BSE, only 19.0% of them performed the examination monthly (Gwarzo, Sabitu and Idris, 2009). Low practice of BSE was also observed in a study carried out at the University of Ilorin where only 29.8% of the female students interviewed practised BSE (Salaudeen et al., 2009). Studies from various parts of Turkey have also strengthened the fact that BSE performance among women is low. For example, Guleser et al. (2009) reported from their study which assessed the knowledge and practice of BSE among health workers in Kayseri, Turkey that out of the 52.4% of women who claimed to practice BSE, only 17% did so monthly. Similar observations were made in a study conducted among adolescent females where 20.3% reported irregular practice of BSE. Out of these, only 6.7% practiced BSE monthly (Karayurt, Ozen and Cetinkaya, 2008).

Similarly, a study from Jordan in which one hundred and fifty one (151) women working in a hospital were interviewed also showed that the practice of BSE by women was low. Although 91.4% of the respondents claimed to have heard about BSE, only 39% practised it monthly (Najah , 2010). This is similar to the study of Jebbin et al. (2004) which aimed to determine the attitudes, knowledge and practice of BSE among 200 women from different walks of life in Port Harcourt. Eighty-five point five percent (85.5%) of them had heard of BSE but 39.0% practised only occasionally, while 24.0% did not practice it at all. Among 76 health workers who participated in the study, 60.0% of doctors and 53.7% of nurses practised BSE only occasionally. Only one doctor could describe how to perform BSE correctly.

In another study conducted on breast self-examination among health professionals at the Abia State University Teaching Hospital, Aba, Abia State, among 100 final year female medical students, house officers, interns, pharmacists and nurses, 79 (84%) reportedly practiced breast self examination, but the number that examined their breast monthly was only 45 (47.9%). A

similar study was performed by Mbanaso et al. (2005) among three hundred and fifty (350) non-health professionals, to ascertain whether they had heard and did practise breast self-examination. Respondents were teachers, civil servant, lawyers, bankers, traders, female undergraduates, retired public servants and business women. It was found out that only 202 (61.4%) had heard of breast self examination (BSE). Out of these, 124 (37.7%) tried to practice BSE while only 59 (17.9%) knew the proper method of BSE. In another study carried out by Onwere, Chigbu, Aluka, Kamanu, Okoro (2009) in Aba to determine antenatal women's knowledge and practice of breast self-examination as a method of early detection of breast cancer, 78% of the respondents practiced breast self-examination regularly, only 34% of them knew the reason for practising breast self-examination.

A number of studies have been carried out on practice of BSE among young women. These, for the most part, have reported low awareness and practice among these groups. For instance, a study carried out among female undergraduate students of the Ahmadu Bello University aged between 16 and 28 years showed low practice of BSE. Only 19% of them practised BSE (Gwarzo et al, 2009). Low awareness (21.7%) and practice of BSE (10.8%) were also reported by Balogun and Owoaje (2005) among adolescents and young adults from their study which examined knowledge and practice of BSE among female traders in Ibadan.Another study conducted by Isara and Ojedokun (2011) aimed at assessing the knowledge of breast cancer and practice of breast self examination (BSE) among female senior secondary school students (mean age 16.5 ± 1.4) reported only 10.1% of respondents had practised BSE.

Some studies among young adults have however shown a higher level of BSE awareness and practice. For instance, Akpo (2010), in his study of breast cancer knowledge and screening practices among a group of Nigerian medical students aged between 21 and 26 years old, reported that 92% were aware of BSE and all participants practised BSE but only 50% practised it correctly. Another study carried out among female health workers in a Nigerian urban city to determine their knowledge, attitudes and practice of breast cancer screening showed that 65.2% of young adults practised BSE (Akhigbe and Omuemu, 2009). This is also similar to a study performed among female medical students in the University of Lagos to determine their knowledge, attitude and practice of BSE where 80.2% reportedly practised BSE regularly (Irurhe, Olowoyeye, Arogundade, Bassey and Onajole, 2011).

A number of studies have also been carried out among adolescents and young adults (AYAs). For instance, a study carried out among 251 female students at the Management and Science University, Malaysia, to determine their practices and barriers towards breast self-examination showed that the majority who never practiced BSE mentioned that lack of knowledge (20.3%), not having any symptoms (14.3%), and being afraid of being diagnosed with breast cancer (4.4%) were the main barriers to practising BSE (Al-Naggar, Hamoud Al-Naggar, Bobryshev, Chen and Assabri, 2011). Another study carried out among high school students in Turkey on their awareness of breast cancer risk factors and practice of BSE showed that 98.5% of the respondents identified lack of knowledge of BSE as a barrier for not practising BSE. The other identified barriers are as follows: not expecting to get breast cancer (45.6%) and not having a close relative with breast cancer (42.9%) (Karayurt et al, 2008).

In a study carried out to determine frequency, awareness, completeness and confidence of practice, 330 Chinese women were interviewed. Fifty-two percent (52%) were practisers of BSE. Forty percent (40%) gained their knowledge of BSE from clinicians and the mean period of practice was 3.2 years. Sixty-eight percent (68%) of the practisers performed BSE completely (Lu, 1995). This study is also similar to a study conducted among nurses in Jordan on the knowledge and practice of BSE where 52% of the nurses reportedly performed BSE (Petro-Nustas, 2002). A study carried out among adolescents in Turkey aged 14 to 19 years showed that 6.7% practised BSE monthly while 20.3% practised it irregularly (Karayurt et al, 2008). A study carried out among Iranian women showed that just under a third of the subjects (31.7%) had performed BSE in the past and 7.1% of them performed it at least monthly (Tavafian, Hasani, Aghamolaei, Zare and Gregory, 2009).

Similarly, a study carried out in Brazil to ascertain frequency of women in a hospital who knew about BSE and carried it out showed that 75% of the women knew about BSE and 51% performed the examination (Koifman, Santos, de Melo, Ribeiro and Melo, 2006).

Barriers to the Practice of Breast Self Examination

A number of studies have identified barriers which prevent young women from practising BSE. They are as follows:

Lack of Knowledge: A study carried out in Yemen to determine the awareness of breast cancer and practice of BSE among university students aged 18 to 28 years showed that 55.9% of the students identified lack of knowledge as a barrier to practising breast cancer. In a study carried out to determine the practice of BSE and barriers to its practice among young Malaysian women aged 18 years and above (most were 20 years old), 20.3% mentioned lack of knowledge as barrier to the practice of BSE (Al-Naggar et al., 2011). Another study was carried out in Yemen to assess the knowledge, attitude and practice of breast self examination among female university students in Al-Mukalla city. Results showed 55.9% mentioned lack of knowledge about technique of BSE as a barrier for not practising BSE (Ahmed, 2010). A study carried out by Karayurt et al. (2008) to determine the awareness of high school students in Turkey about breast cancer risk factors and breast self examination showed that the most common reason for not doing BSE was "not knowing how to perform BSE" (98.5%). A study carried out by Irurhe, Raji, Olowoyeye, Adeyomoye, Arogundade, Soyebi, Ibitoye, Abonyin and Eniyandunni (2012) to assess knowledge and awareness of breast cancer among female secondary school students aged 12 to 18 years in Nigeria showed that 39.5% of the respondents did not perform BSE because of lack of knowledge. Similarly, another study carried out among other female secondary school students in Abuja aged 13 to 22years to determine knowledge of breast cancer and practice of BSE showed that majority of the respondents (69.5%) identified lack of knowledge as a barrier for not practising BSE (Isara et al., 2011).

Lack of Time: Okolie (2012) reported from their study of BSE among female undergraduate nursing students that 36.22% of the respondents identified lack of time as a barrier to practising BSE. Also a study conducted among female undergraduates of the Ahmadu Bello University also showed that respondents identified lack of time as a barrier to practising BSE (Gwarzo et al., 2008). A study conducted to assess the practice of BSE among adolescents and young adults aged 16 to 28 years in tertiary institutions in Ilorin, Nigeria, showed that 27% of the respondents indicated lack of time as a barrier to the practice of BSE (Salaudeen, Akandem and Musa, 2009).

Fear of Discovering a Lump: Okolie (2012) from their study reported that 16.33% of the respondents identified fear of discovering a lump as a barrier to practising BSE.

Absence of Lumps During Previous Breast Self Examination: Salaudeen et al. (2009) reported that 22.7% of the respondents identified absence of lumps during previous breast examination as a barrier to the practice of BSE. Similarly, in a study conducted by Gwarzo et al, 2008, lack of problem with the breasts was also a barrier identified by the respondents.

Other barriers include forgetfulness as seen in a study carried out by Okolie et al. (2008) and Gwarzo et al. (2008) where respondents identified forgetfulness as a barrier to practising BSE, belief of not expecting to develop breast cancer as reported by Al-Naggar et al. (2011), lack of self confidence in performing BSE (Okolie et al.,2012); procrastination (Okolie et al., 2012); and anxiety (Okolie et al.,2012).

2.6 Treatment of Breast Cancer

A number of treatment options exist for women who have breast cancer. These are breast-conserving surgery (lumpectomy), mastectomy, lymph node dissection, radiation therapy, hormonal therapy, chemotherapy and Herceptin.

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 as well as the muscle underlying the breast and the nearby lymph nodes is removed.

Radiation therapy is used in conjunction with lumpectomy and mastectomy. This therapy uses high-energy rays to damage cells and to stop them from growing (National Cancer Institute, 2000). Chemotherapy is another therapy used in conjunction with breast surgery. It is considered important in the treatment of breast cancer because it could destroy cancer cells that are undetectable by x-ray. During chemotherapy, a combination of drugs is administered to destroy cancer cells. These drugs appear to be more effective when they are combined (American Cancer Society, 1999).

Hormone Replacement Therapy is also used in the treatment of breast cancer. Recent results from the Women's Health Initiative (WHI) have shed light on the risks of hormone replacement therapy (HRT), which is currently used by about 38% of postmenopausal women in the United States.

2.7 Conceptual Framework

2.7.1 The Health Belief Model

The Health Belief Model (HBM) is a psychological model that attempts to explain and predict health behaviours. This is done by focusing on the attitudes and beliefs of individuals. The HBM was first developed in the 1950s by social psychologists Hochbaum, Rosenstock and Kegels working in the U.S. Public Health Services. The model was developed in response to the failure of free tuberculosis (TB) health screening programme. Since then, the HBM has been adapted to explore a variety of long- and short-term health behaviours, including sexual risk behaviours and the transmission of HIV/AIDS (Rosenstock, Strecher and Becker, 1994). The core assumptions and statements are based on the understanding that a person will take a health-related action if that person feels that a negative health condition can be avoided and has a positive expectation that by taking a recommended action such a negative health condition will be avoided. It is also based on the belief that the person can successfully take such a recommended action.

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 BSE or mammography screening (Wu et al., 2003, Lagerlund et al., 2000). The HBM has also been frequently applied to breast cancer screening (Champion et al., 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, 2002).

According to Ross and Mico (1980), the model is interactive as it is based on three primary dimensions:

- The individual’s readiness to comply with recommended action based on perception of threat
- The motivating and enabling forces that determine what the individual will do and
- The compliance behaviour actually executed

2.7.2 Application of HBM to the Study

Applying the HBM to this study, a woman's motivation to practice BSE depends on her perceived severity of, susceptibility to and threat of breast cancer. Similarly, a woman who perceives that practising BSE would help her detect breast cancer early and perceives fewer barriers to its practice such as ease of performance and adequate knowledge of the examination is likely to perform the examination.

Also, a woman who has been exposed to an external cue (e.g., the positive influence of a health care provider or the media) would also readily adopt BSE, as would a woman who wants to improve her health and who is confident of positive results.(see figure I)

For the purpose of this study, all the sub contents in the construct were used except the cues to action.

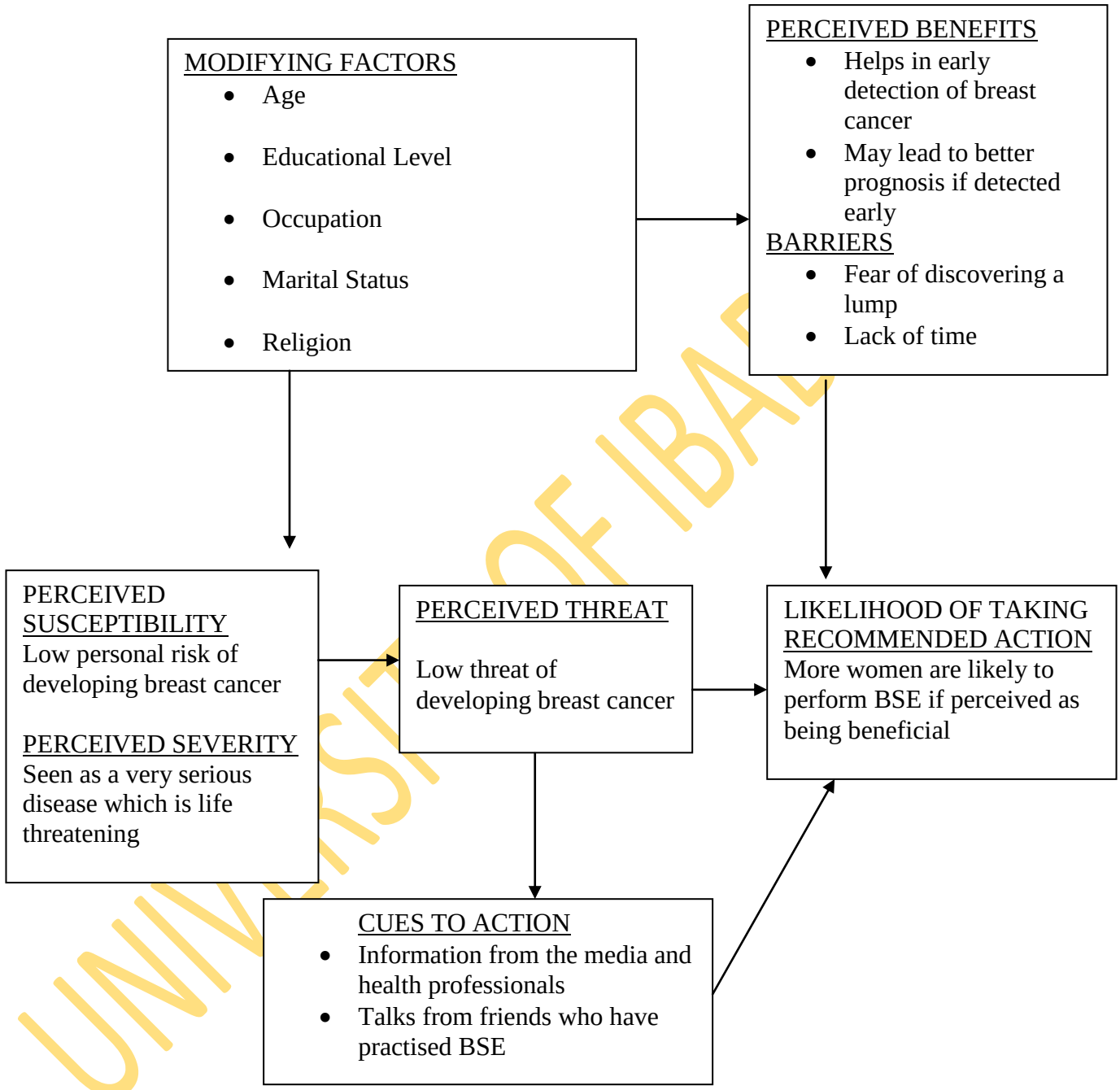

Fig 2.I: The Application of the Health Belief Model to the Practice of Breast Self Examination

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study Design and Scope

This study was a descriptive cross sectional survey designed to identify the factors influencing practice of Breast Self Examination among young women in Eleyele, one of the wards in Ibadan North West LGA. It utilized a collection of data that assessed awareness and knowledge of breast cancer and breast self examination, perceived seriousness and perceived susceptibility of breast cancer, and practice of breast self examination.

3.2 Study Variables

The dependent study variables in this study are knowledge and practice of breast self examination while the independent variables are the demographic factors such as age, occupation, income, education, marital status, religion, ethnicity, parity of respondents' mother, respondents' position among mothers' children, parity of respondents and respondents' age at birth of first child.

3.3 Description of Study Area

Ibadan is the largest city in West Africa. It is the capital of Oyo State and it is situated in the south western part of Nigeria with an estimated population of 4 million people (National Population Commission, 1991). Ibadan North-West Local Government area is one of the five administrative local government areas in the state and it was created in August 1991 with its headquarters at Onireke near Dugbe, Ibadan. The LGA covers a large area of land and has a total population of about 147,918 people(National Population Commission, 1991). It is divided into the following eleven wards: (1) Asukuna (2) Bere/Ayeye (3) Agbaje (4) Idikan (5) Olorisa-Oko (6) Alawo/ Abebi (7) Ekotedo (8) Inalende (9) Afonta (10) Eleyele and (11) Olopomewa. The inhabitants of the LGA are predominantly Yoruba. The LGA has 34 primary schools, three tertiary institutions, twelve private hospitals, five maternity centres and a Child Health Centre at Jericho. Eleyele is one of the eleven wards in Ibadan North-West Local Governement Area. It is an urban settlement with few rural settlements. It is bounded on the North by Ido L.G, on the

West by Ibadan North Local Government and on the South by Ibadan South West L.G. Most dwellers especially the men are traders, artisans, commercial bus and cab drivers. The women are mostly housewives. There are five health facilities in Eleyele, one of which is Government-owned. The Government-owned facility is a Primary Health Care (PHC) clinic which has an antenatal clinic and a youth friendly clinic. The key health problems usually taken to the facility include malaria fever, diarrhoea and cough. Some victims of road transport accidents (RTA) also attend the clinic for dressing of their wounds. No case of breast abnormality has however been taken to the facility. The information obtained from the records of women attending the antenatal clinic showed that among women who attended the facility from March 2011 to February 2012, the average weight was 55.02 kg. Most of the women had a parity of 1. Average parity of the women was 2. Information was however not available on breastfeeding pattern and alcohol consumption of the women, but interview with the officials revealed that from observations made during immunization clinics, most of the women did breastfeed their children for an upward of one year or even up to 2 years in some cases.

Information obtained from the youth friendly clinic which is a part of the Primary Health Care clinic showed that a total of 26 cases were seen at the youth-friendly clinic of the PHC clinic, Eleyele in 2010. Health talks are given during their meetings and a number of IEC materials are made available to educate them and enable them to make informed decisions. None however addresses the issue of breast cancer and breast self examination. No case of breast cancer or any breast disease has been seen since inception of the clinic (Olorunsola-Youth Friendly Clinic Coordinator, Personal Communication; April, 2012).

An interview conducted with the coordinator of the youth friendly clinic revealed that the use of oral contraceptives was reported among the young women who visited the clinic. Some in the process of trying to prevent a pregnancy or terminate it, use all manner of unimaginable things such as potash and blue which is a dying agent used for laundry purposes (Olorunsola-Youth Friendly Clinic Coordinator, Personal Communication; April, 2012).

3.4 Study Population

The study population consisted of females in Eleyele aged between 15 and 29 who had stayed in the community for at least six months.

3.5 Sampling Procedure

(i) Sample size calculation

Population size (females) = 9,324

Expected frequency = 39%

Worst Acceptable frequency = 44%

Confidence Level	Sample Size
80%	154
90%	251
95%	352
99.9%	591

Prevalence of Breast Self Examination practice used is 39% (Jebbin et al., 2004)

At C.I of 95%, the sample size is 352

With 10% attrition rate added to it, sample size becomes 387 (i.e 352 + 35)

Sample size = 387

(Sample size calculated using EPINFO)

(ii) Sampling technique and Sample Size Selection

A four-stage random sampling technique was used in this study. This included the following variables: Local Government Areas, wards, households and units of enquiry.

Step 1 – Simple random sampling involving balloting was used to select IBNWLGA as the study site among the 5 major local government areas that make up Ibadan metropolis.

Step 2: A preliminary study to document the number of wards that are in the LGA and their locations as well as the basic socio-demographic characteristics of the people living within the LGA was conducted. Simple balloting was used to select 1 ward out of 11 wards that make up the LGA.

Step 3: From the central point of the community, the central house was determined by spinning a beer bottle and the house where the long neck of the bottle faced when it stopped

spinning was taken to be the starting point for selection of the houses. From the central point of the community, alternate houses were selected utilizing the systematic sampling technique until the required sample size of 370 was obtained. In any house where there were no eligible females, the next house was selected. Similarly, in any house where there was more than one household, only one household was selected.

Step 4: In a selected household, one female was selected among the eligible females who were willing to participate using a simple random technique.

3.6 Research Instruments

The instruments used were a Focus Group Discussion guide and a Questionnaire designed by the researcher with the input of the supervisor.

Focus Group Discussion

A focus group discussion guide was constructed to gather information on the causes and prevention of breast cancer, breast cancer screening methods, experience with breast self examination and facilitating factors to BSE practice among young women (See appendix I). This was translated to Yoruba by a woman who is vast in both English and Yoruba. This was later translated back to English by a man who is equally vast in Yoruba and English so as to ensure that the instrument was well translated (See appendix 1B for the Yoruba version). This was done in order not to lose the meaning of the items in the questionnaire during the process of translation. The investigator, who is also fluent in English and Yoruba, also reviewed the English and Yoruba versions for accuracy.

The Questionnaire

A 45-item questionnaire consisting of semi-structured closed and open-ended items was used for the study (See appendix II). The instrument which was drawn in English was translated to Yoruba by someone vast in both English and Yoruba. This was later translated back to English by another person who is equally vast in Yoruba and English so as to ensure that the instrument was well translated. This was done in order not to lose the meaning of the items in the questionnaire during the process of translation (see appendix II and IIB for the English and

Yoruba versions respectively). The investigator who is also fluent in English and Yoruba also reviewed the Yoruba and English versions for accuracy.

The questionnaire had four sections namely demographic characteristics, knowledge and awareness, perceived susceptibility and practice.

Section A provided information on demographic characteristics of respondents.

Section B provided information on knowledge. It consisted of questions which addressed

a) Causes and symptoms of breast cancer

b) Knowledge of breast cancer screening methods

c) Knowledge of breast self examination

Section C provided information on respondents' perceived severity and susceptibility to breast cancer.

Section D provided information on respondents' practice of breast self examination and self efficacy.

3.7 Validity

Validityis the degree to which an instrument measures what it is supposed to measure.

Several measures were taken to ensure that the instrument were valid. Experts- a medical sociologist, a psychologist, a medical statistician and a health education specialist - were consulted to review the instrument for face and content validity. Face validity was ensured through review of the instruments and the input of my supervisor while content validity was ensured through the review of pertinent literature in the study area.

The instrument, which was drawn in English, was translated to Yoruba by someone vast in both English and Yoruba. The investigator, who is also fluent in Yoruba and English, also reviewed the Yoruba and English versions for accuracy.

3.8 Reliability

The reliability of an instrument is the degree to which it yields constant result on repeated trials.

Both the FGD guide and questionnaires were pretested in Ibadan North local government area. This LGA has similar characteristics with Ibadan North West which is the study area.

Focus Group Discussion Guide

In order to determine the reliability of the FGD guide, it was pretested in 2 locations in Agbowo. The purpose of the pretest was to observe acceptability of instruments to participants and also to ensure that the items were well understood.The pretest was carried out on March 17th 2008 in Agbowo.

The developed FGD guideswere used for the administration of the pretest. The guides were simple, straightforward and easy to understand, devoid of any ambiguity. Two FGD pretests were carried out in Agbowo among women who were eligible to participate. Agbowo has a population with similar characteristics with the actual studypopulation.

Questionnaire

The two versions of the questionnaire (the English and Yoruba versions) were pre-tested among 40 subjects in a neighbourhood around the Polythecnic, Ibadan North LGA. Question 36 (Have you had late age at first pregnancy?) was not clear and was a repetition of question 11 so it was excluded. Question 37 (now question 36) had a sub question (If yes, by who?) which was not necessary and confused respondents. It was therefore excluded from the questionnaire. To confirm the reliability of the instrument, analysis of pre-test data was done using Cronbach's Alpha correlation coefficient of the Statistical Package for Social Sciences (SPSS).

According to this approach, a result showing correlation coefficient greater than 0.05 is said to be reliable. The result of the analysis of the data collected during the pre-test was 0.854**.**

Another step taken to promote the reliability of data collected was the training of recruited Research Assistants (RAs). Four RAs were recruited and trained. The training focused on the following: overview of breast cancer and breast self examination; principles and practice of conducting interviews. Their knowledge of elements of the questionnaire was also upgraded. This involved explaining what each question was seeking, how it should be asked as well as how answers should be recorded. Discussions, questions and answers, and role-plays were the training methods used. The training lasted for 1 day. The trainees were also involved in the pre-test of the questionnaire. This was an experiential learning opportunity created to sharpen the RAs' interviewing skills and to be acquainted first hand, with the challenges of conducting interviews.

3.9 Ethical Consideration

Consent of Participants: Informed consent was obtained from the study participants. Participants had the choice of participating or withdrawing their consent freely at any time.

Confidentiality of Information Obtained: Participants were informed that their responses would be kept confidential. No names were required on the questionnaire. Confidentiality of each participant's responses was maintained during and after the collection of data; only registration numbers were assigned to each questionnaire. The registration numbers were to facilitate data entry and analysis and no one could link the identity of the participants with the registration numbers.

3.10 Data Collection Process

Focus Group Discussions (FGDs)

A total of eight focus group discussions (two for discussants aged 15 to 17 years, two for discussants aged 18 to 19 years, two for discussants aged 20 to 24 years and two for discussants aged 25 to 29 years) were conducted in Benjamin, Olopomewa, Eleyele-Oja and Eleyele roundabout areas.

Each FGD group consisted of an average of six to eight respondents. Two research assistants were involved in the documentation of the whole process (one as a note taker and the other as an observer while the researcher moderated the discussion).

The researcher introduced herself and members of the team. She explained the purpose of the discussion, and sought the permission of the discussants to tape record the discussion. The discussants were assured that opinions expressed by them would be kept secret and were purely for research purposes.Each discussion lasted between 30 and 40 minutes on the average.

After each FGD session, the discussion on the audiotape was replayed and carefully listened to and then transcribed into a notebook.

Questionnaire

The administration of questionnaire was done by the researcher with the help of the four (4) trained research assistants. The questionnaire copies were self administered. The Yoruba version of the questionnaire was administered to those who preferred it. The researcher, in collaboration

with the research assistants, assisted study respondents where necessary while filling the questionnaire copies. Data collection was carried out within a period of two weeks by four trained research assistants and the researcher. The study participants were interviewed at a time considered convenient for them mostly between 8am and 3pm. The data collection process involved self administration and retrieval of the questionnaires from the respondents immediately after completion and review for completeness.

All the questionnaire copies were serially numbered. Certain number of questionnaire copies was given to each research assistant. During the data collection process, the researcher moved around research assistants (where and when possible) within her reach to ensure the whole process went on smoothly. After data collection for the day was over, the researcher ensured that each research assistant returned the exact number of questionnaire copies given. This was easy since the questionnaire copies were serially numbered. A random check of the questionnaire copies was then done by the researcher to ensure that all items were properly responded to. Any difficulty experienced by the research assistants on the field was looked into and resolved. The quality of information collected from the field was checked by the researcher on the field. This entailed reviewing the pattern of responses of each participant as recorded in the questionnaire. Problems discovered during data collection were resolved immediately on the field. Overall, 370 respondents were interviewed using the questionnaire.

3.11Data Management and Analysis

Focus Group Discussions:

1.All the information obtained from the tape-recorded FGDs were transcribed and summarized using the thematic approach.

Questionnaires:

2.Serial numbers were assigned to all the questionnaires copies for easy identification and recall of any instrument with problems.

3.Administered questionnaire copies were edited and coded by the researcher with the use of coding guide. The data in each questionnaire copy were analysed using the Statistical Package for Social Sciences (SPSS).

4.The data were analysed using descriptive statistics (mean, median, range, chi-square, logistic

regression).

5.A 7-point knowledge scale was used to measure the respondents' knowledge of breast self examination. A score of 1 was given to any correct answer while a score of zero was given to any wrong answer. A score of 0-3 points was rated as poor knowledge and 4-7 points was rated as good knowledge. Six question items were used to assess respondents' knowledge of BSE. They are questions 22, 23, 24, 25, 27 and 28 (Question 24 had two correct answers).

6.Hypotheses were also tested to determine different levels of significant relationships between selected variables using the chi square test. The statistical test was carried out on a 95% confidence level and values that were not statistically significant were excluded.

CHAPTER FOUR

4.0 RESULTS

A summary of findings from this study are presented in this section. It is organised into the following subsections: socio-demographic characteristics; knowledge/awareness, about breast cancer and breast self examination, perceived seriousness and perceived susceptibility to breast cancer and practice of breast self examination.

4.1 Respondents' Socio-demographic Characteristics

The age of the respondents in this study was between 15 and 29 years. Respondents' mean age was 22.54 ± 3.93 years. Respondents aged 15 to 21 years constituted 42.4% of the sample population while respondents aged 22 to 29 years constituted 57.6% of the sample population. Slightly less than half (49.5%) of the respondents had secondary education while only 43.2% had tertiary education. Majority (79.5%) were Yoruba and 74.3% were single. More than two third of the respondents, 71.1%, were Christians while 26.5% were Moslems. Most (52.2%) of the respondents were students while 20% were business women. Reported income of the respondents was 24.1% (N1, 000-N11, 000) and 9.5% (N11, 100 – 21, 000). Others are shown in table 4.1.

Table 4.1: Socio-demographic characteristics of respondents N=370

Variable		**Frequency**	**Percentage**
Age Group	15-21	157	42.4
	22-29	213	57.6
	Total	370	100
Education	Primary	27	7.3
	Secondary	183	49.5
	Tertiary	160	43.2
	Total	370	100
Ethnicity	Yoruba	294	79.5
	Hausa	8	2.2
	Igbo	35	9.3
	Others (Edo, Ibira, Ijaw)	33	8.9
	Total	370	100
Marital Status	Single	275	74.3
	Married	82	22.2
	Cohabiting	8	2.2
	Separated	5	1.4
	Total	370	100
Religion	Christianity	263	71.1
	Islam	98	26.5
	Traditional Religion	4	1.1
	Others (Pagan, Eckankar, Irikrisiona)	5	1.4
	Total	370	100
Occupation	Students	193	52.2
	Business Women	74	20.0
	Housewives	4	1.1
	Workers	35	9.5
	Artisans	23	6.2
	Applicants	41	11.1
	Total	370	100
Income	N1,000-N11,000	89	24.1
	N11,100-N21,000	35	9.5
	N21,100-N31,000	16	4.3
	N31,100-N41,000	5	1.4
	>N41,000	1	0.3
	Total	146	39.6

4.1.1 Respondents' Parity and Age at Birth of First Child

The respondents' median parity was 2. Majority (76.8%) of the respondents had between 1 and 2 children.

The mean age of respondents at birth of first child was 22.21 ± 2.87 years. Majority (72.7%) of the respondents were adolescents and young adults (between ages 17 and 24 years) when they had their first child. Others are shown in Table 4.2.

Table 4.2: Respondents' Parity and Age at Birth of First Child

Variable		No	%
Parity of respondents	1	38	46.3
	2	25	30.5
	3	13	15.9
	4	5	6.1
	6	1	1.2
	Total	82	100
Respondents' age at birth of first child	17	1	1.3
	18	12	15.0
	19	3	3.8
	20	7	8.8
	21	12	15.0
	22	11	13.8
	23	2	2.5
	24	10	12.5
	25	11	13.8
	26	6	7.5
	27	4	5.0
	28	1	1.3
	Total	80	100.0

4.1.2 Parity of Respondents' Mothers and Respondents' Position Among Mothers' Children

The median parity of respondents' mothers was 5. More than three quarters (72.5%) of the respondents' mothers had between 1 and 5 children with 27.6% having 4 children, 27%, 5 children and 12.2%, 3 children. The median position occupied by respondents among their mothers' children was 3 with more than three quarters (80.5%) occupying positions 1, 2, 3 and 4 respectively among their mothers' children. Most (23.2%) of the respondents occupied position 3 among their mothers' children. This was followed by 22.7% of the respondents who occupied position 1 among their mothers' children and 21.4% who occupied position 2 among their mothers' children. Others are shown in table 4.3.

Table 4.3: Parity of Respondents' Mothers and Respondents' Position among Mothers' Children

N=370

Variable		No	%
Parity of respondents' mothers	1	10	2.7
	2	11	3.0
	3	45	12.2
	4	102	27.6
	5	100	27.0
	6	59	15.9
	7	20	5.4
	8	12	3.2
	9	2	0.5
	10	3	0.8
	11	1	0.3
	No response	5	1.4
Respondents' position among mothers' children	1	84	22.7
	2	79	21.4
	3	86	23.2
	4	49	13.2
	5	30	8.1
	6	26	7.0
	7	5	1.4
	8	1	0.3
	9	2	0.5
	10	1	0.3
	No response	7	1.9

4.2 Respondents' Awareness of Breast Cancer and Breast Cancer Screening Methods

Most (94.3%) of the respondents were aware of breast cancer. This is similar to the result of the FGD where all the FGD respondents had heard about breast cancer. Most (69.5%) of the respondents were not aware of breast cancer screening methods. Only 30.5% of the respondents identified breast self examination as a breast cancer screening method. The other breast cancer screening methods identified by the respondents are as follows: medical check up (20.9%) and chemotherapy (16.4%). Others are shown in Table 4.4.

The awareness of breast cancer among the FGD discussants was high. However, awareness of breast cancer screening methods was very low. Only very few mentioned medical checkup, palpating the breast for someone else (CBE) and breast self examination.

Below are the quotes of some discussants with respect to breast cancer and breast cancer screening methods.

"*I do not know much about breast cancer but I know that women are mostly affected by the disease."(*An adolescent from Eleyele Oja)

"Although I have heard about breast cancer, I really do not know much about it, but I know it is a very deadly disease."(An adolescent from Olopomewa)

"One way one can check if one has breast cancer is by examining the breast from time to time." (A young adult from Eleyele roundabout)

"*We as women should always take good care of our breasts so that they do not get infected and lead to breast cancer." (*An adolescent from Benjamin area)

Table 4.4: Respondents' Awareness of Breast Cancer and Breast Cancer Screening Methods

	Response	No	%
Have you heard of breast cancer? (N=370)	Yes	349	94.3
	No	21	5.7
Do you know of any breast cancer screening method?(N=370)	Yes	113	30.5
	No	257	69.5
*If yes, what are they?(N=177)	Breast self examination	54	30.5
	**Medical check up	37	20.9
	**Chemotherapy	29	16.4
	**Digital Rectal Examination	29	16.4
	Palpating the breast for someone else (CBE)	28	15.8

*Multiple Responses

** Incorrect responses

4.2.1 Respondents' Awareness of BSE and Their Sources of Information

Majority (52.1%) of the respondents had heard about BSE. The major sources of information were as follows: mass media (35.8%), Physicians (24.9%) and literature (17.6%).

The FGD showed that only very few respondents were aware of breast self examination and their major source of information was the mass media.

4.3 Respondents' Perception of Breast Cancer Seriousness

Majority of the respondents (92.7 %) were of the opinion that breast cancer is a serious disease for the following reasons. It kills (57.5%), it disfigures the victim (21.8%) and it is incurable (10.8%). (Others are shown in Table 4.5)

The result of the FGDs was similar to that of the survey in that all the FGD discussants unanimously agreed that breast cancer is a serious disease. Below are the quotes of some respondents.

"Breast cancer is a serious disease. It kills. I do not even pray that my enemy should have it."(An adolescent from Benjamin area)

"Breast cancer makes the victims feel like outcasts in the society because it disfigures them and makes them feel terrible both physically and emotionally."(A young adult from Benjamin area)

Table 4.5: Respondents' Perception of Breast Cancer Seriousness

Variable		No	%
Is breast cancer is a serious disease?(N=370)	Yes	343	92.7
	No	27	7.3
*If yes, why?(N=372)	It kills	214	57.5
	It disfigures the victim	81	21.8
	It is incurable	40	10.8
	It is a viral disease	18	4.8
	An operation is involved once one has it	16	4.3
	It is hereditary	3	0.9

*Multiple responses

4.3.1 Respondents' perception of breast cancer susceptibility

Majority (86.8%) of the respondents reported that they were not at risk of having breast cancer for the following reasons; faith in God (20.8%), no history of breast cancer in family (14.2%) and regular breast examination (13.4%). Most (83%) of the respondents reported that their risk of having breast cancer was low. (Others are shown in table 4.6).

Most of the FGD discussants reported that they were not at risk of having breast cancer. Below is a quote of one discussant.

"God forbid. I cannot have breast cancer" (A young adult from Eleyele roundabout)

Table 4.6:Respondents' perception of breast cancer susceptibility

Variable		No	%
Are you at risk of having breast cancer ?(N=370)	Yes	49	13.2
	No	321	86.8
*If no, why?(N=365)	I have faith in God	76	20.8
	No history of breast cancer in my family	52	14.2
	I examine my breasts regularly	49	13.4
	I do not put money in the brassiere	36	9.8
	I do not wear tight brassiere	15	4.1
	I do not drink or smoke	15	4.1
	I do not have many boyfriends	12	3.3
	I report any abnormality to the Physician	12	3.3
	I believe I can never have breast cancer	34	9.3
	I take good care of my breasts	17	4.7
	I do not have any symptom of breast cancer	33	9.0
	I go for medical check up every month	14	3.8
How would you rate your chances of having breast cancer?(N=370)	High	10	2.7
	Very High	5	1.4
	Moderate	48	13.0
	Low	101	27.3
	Very Low	206	55.7

* Multiple Responses

4.3.2 Worries about Breast Cancer

Majority (62.0%) of the respondents were not worried about breast cancer. The most cited reasons given by the respondents for not being worried about breast cancer were: not having symptoms of breast cancer (15.2%), belief of non vulnerability to breast cancer (14.8%) and faith in God (13.6%). When respondents were asked why they were worried about breast cancer, the main responses were "it kills" (39.7%), "it is traumatic" (26.5%) and "it is incurable"(11.9%). Others are shown in table 4.7.

The findings from the FGDs were at variance with that of the questionnaire in that most of the discussants said they were worried about breast cancer. Below is the quote of a discussant.

"If one says one can never have the disease and as such there is no need to be worried, one should also remember that those who now have the disease never thought they would have it some day, so I think it is a disease one should worry about." (A young adult from Olopomewa)

Table 4.7 Respondents' Worries about Breast Cancer

Variable	Response	No	%
Are you worried about breast cancer?(N=353)	Yes	134	38.0
	No	219	62.0
*If yes, why?(N=151)	It kills	60	39.7
	It is traumatic	40	26.5
	It is incurable	18	11.9
	I am not knowledgeable about breast cancer	17	11.3
	Anyone can have the disease	14	9.3
	I will not be able to breastfeed	2	1.3
If no, why (N=243)	Not having symptoms of breast cancer	37	15.2
	I can never have breast cancer	36	14.8
	Of my faith in God	33	13.6
	I do not know much about it	22	9.1
	None of my relatives have it	20	8.2
	I examine myself every month	17	7.0
	I do not put money in the brassiere	16	6.6
	I have not seen a victim before	16	6.6
	I am not interested	11	4.5
	I take good care of my breast	10	4.1
	I do not wear another person's brassiere	9	3.7
	I do not drink or smoke	8	3.3
	It can be prevented	8	3.3

*Multiple responses

4.4 Respondents' knowledge of Breast Cancer Causation

About a third (30.8%) of the respondents mentioned keeping money in the brassiere as the cause of breast cancer. Other causes of breast cancer mentioned by the respondents include poor personal hygiene (19.4%) and this was followed by heredity (15.0%) and alcohol drinking and smoking (11.8%). (Others are shown in table 4.6).

Three main notions of causation of BC from the FGD emerged. These are heat generation from putting money in the brassiere, poor personal hygiene and abortion. The following are some of the quotes of the discussants.

"*Theheat generated when women put money in the brassiere could cause breast cancer". (*A young adult from Eleyele Oja).

"It is very important for women to take good care of themselves especially when they are pregnant. Women who do not take good care of themselves during pregnancy and wash their breasts regularly may end up having infected breasts which may lead to breast cancer.''(An adolescent from Olopomewa).

"*Breast cancer occurs when pregnant women abort their babies and the breast milk accumulates. The breast milk may start smelling and may even go bad. This, if not properly taken care of, may lead to breast cancer.''*(A young adult from Benjamin area)

Other notions of causation of BC as mentioned by the discussants in the focus group discussions are consumption of native concoction by pregnant women, having multiple sexual partners, use of deodorants and bleaching creams (which contain hydroquinone) and heredity.

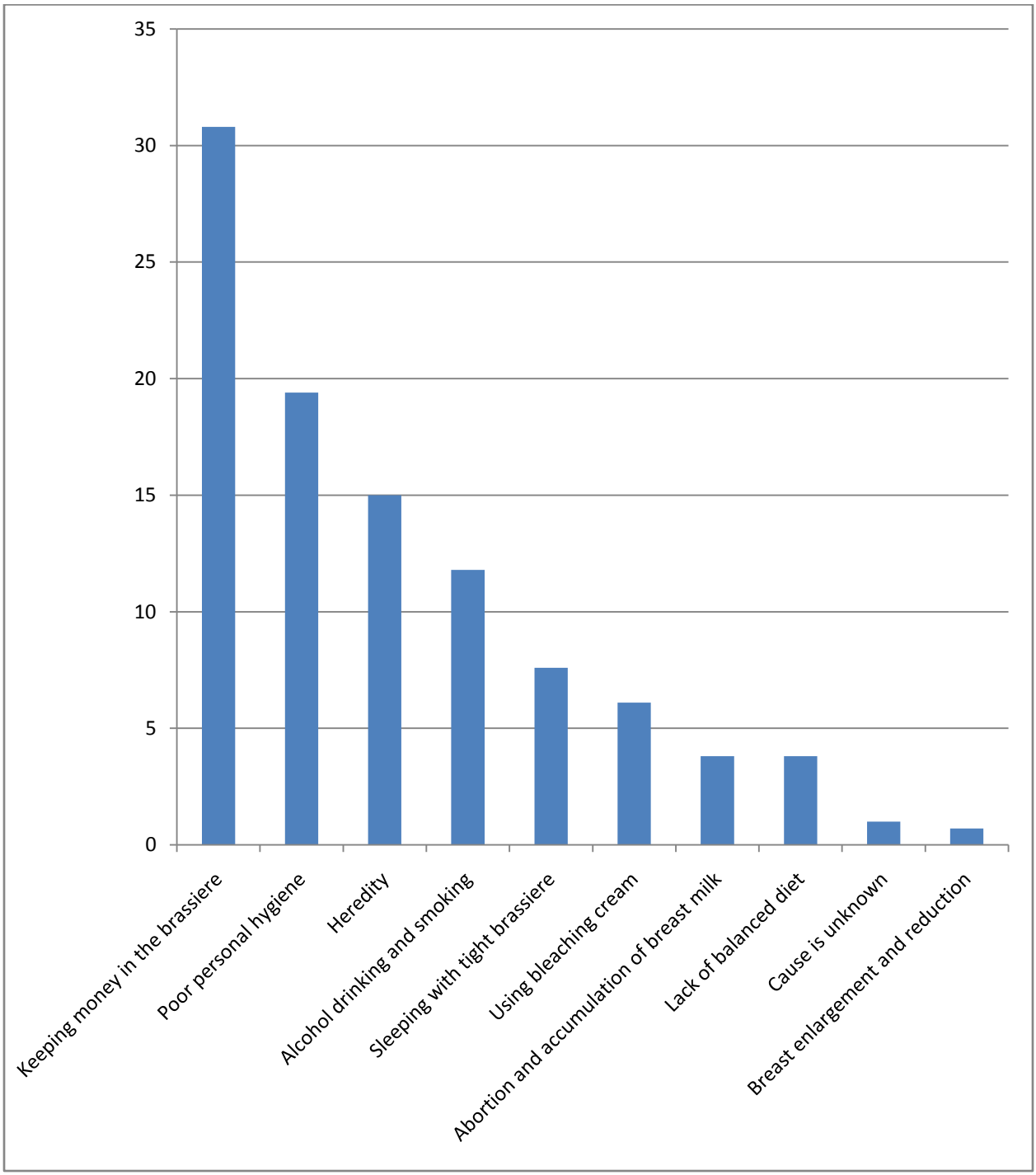

Fig 4.1: Respondents' knowledge of breast cancer causation

4.4.1 Respondents' Knowledge of Breast Cancer Symptoms

Lumps (27.3%) were the most commonly identified symptom of breast cancer followed by pains (26.4%), swollen breasts (25.3%) and discharge/spotting (11.8%). Others are shown in table 4.9. Two major symptoms of breast cancer emerged from the focus group discussions namely lumps and pains. The following are the quotes of some discussants.

"Going by what I have heard from people, breast cancer patients usually have lumps in their breasts."

"I know that women usually have stationery lumps in their breasts, but if there is a lump which seems to be moving around in the breast, then that might be a symptom of breast cancer."

"Victims of breast cancer usually suffer from excruciating pains"

Table 4.8: Respondents' Knowledge of Breast Cancer Symptoms

N= 458

S/N	*Symptoms of breast cancer	No	%
1	Lumps	125	27.3
2	Pains	121	26.4
3	Swollen breasts	116	25.3
4	Discharge/spotting	54	11.8
5	Blisters/wounds on affected breast	27	5.9
6	Colour change/reddening of the areola	8	1.7
7	Weight loss/dehydration	5	1.1
8	Nipple retraction	2	0.4

*Multiple Responses

4.4.2 Respondents 'Knowledge of Preventing Breast Cancer

Majority (63.5%) of the respondents reported that breast cancer could be prevented.

When asked methods for preventing breast cancer, the following were the main responses given: medical check up (20.7%), good personal hygiene (16.0%), not putting money in the brassiere (15.7%) and performing breast self examination (14.5%). (Others are shown in table 4.10)

The FGD findings were similar to that of the survey in that most of the discussants believed that the disease could be prevented. When asked how, the most common response was good personal hygiene. Most agreed that personal hygiene was sufficient to prevent the occurrence of breast cancer.

One discussant however differed from the majority and opined thus:

"*To me, breast cancer cannot be prevented because we do not even know what causes it. It is only a disease that you know its cause that you can prevent."(A young adult from Olopomewa)*

Table 4.9: Respondents' Knowledge of Preventing Breast Cancer

Variable		No	%
Is breast cancer a preventable disease? (N=370)	Yes	235	63.5
	No	135	36.5
*What can be done to prevent breast cancer? (N=256)	**Medical check up	53	20.7
	**Good personal hygiene	41	16.0
	**Not putting money in the brassiere	37	15.7
	Breast self examination	35	14.5
	Early treatment	23	8.9
	**Healthy lifestyle	15	5.9
	**Not smoking or drinking alcohol	14	5.5
	**Not wearing tight brassiere	13	5.1
	Prompt reporting of abnormalities to physicians	12	4.7
	Undergoing an operation to remove a lump	10	3.9
	**Not using bleaching cream	3	1.2

*Multiple Responses

** Incorrect responses

4.4.3 Respondents' Knowledge of Advantages and Disadvantages of Breast Self Examination

Majority (59.8%) of the respondents mentioned early detection of breast cancer and reduction in chances of having breast cancer (40.2%) as advantages of breast cancer. On the disadvantage of BSE, less than half (44.9%) reported that BSE had no disadvantage while 23.5% cited fear of discovering a lump. (Others are shown in table 4.11)

Table 4.10: Respondents' Knowledge of Advantages and Disadvantages of Breast Self Examination

Variable		No	%
*Advantages of breast self examination (N=186)	Early detection	131	70.4
	Reduces chances of having breast cancer	55	29.6
*Disadvantages of breast self examination (N=98)	None	44	44.9
	Fear of discovering a lump	23	23.5
	Painful to perform	13	13.3
	Not accurate enough to detect breast cancer	11	11.2
	It is time consuming	7	7.1

*Multiple responses

4.4.4 Respondents' Knowledge of Abnormalities that Can Be Detected during Breast Self Examination

Nearly half (47.1%) of the respondents mentioned lump as an abnormality that could be detected during BSE. This was followed by pain (23.2%) and swollen breasts (14.3%). (Others are shown in table 4.12).

Knowledge of abnormalities that could be detected during BSE was low among the FGD discussants. Very few mentioned lumps, pains and sores/wound on the affected breasts. The following are the quotes of the discussants.

"If you find anything that is too hard or soft (lump) when examining the breast, that is not normal."(An adolescent from Eleyele Oja)

"Normally, a woman's breasts should not be painful, so any pain felt when examining the breast is abnormal."(An adolescent from Olopomewa)

"When examining the breasts, any sore or wound that is seen is abnormal."(A young adult from Eleyele Oja)

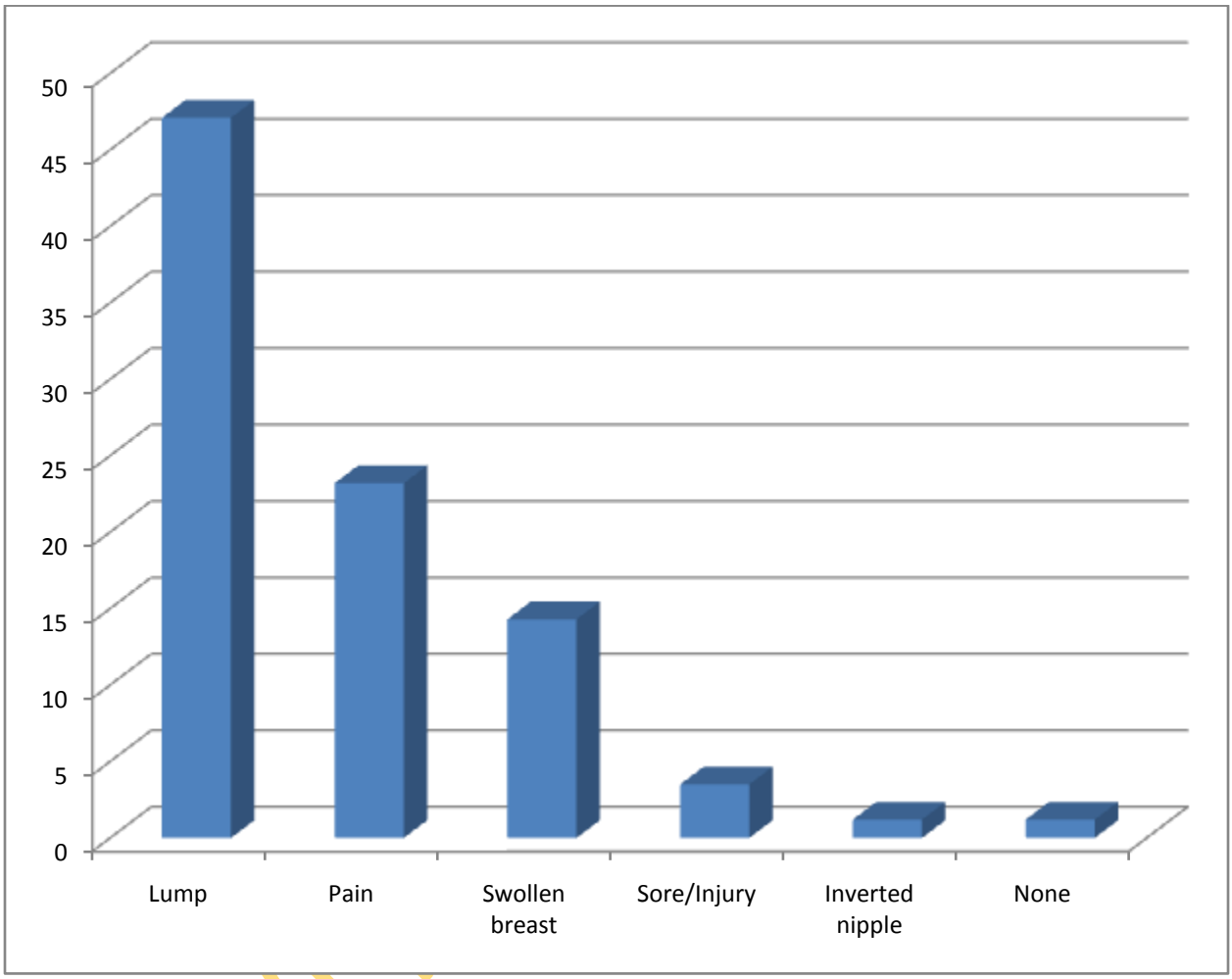

Fig 4.2: Respondents' Knowledge of Abnormalities that Can Be Detected during Breast Self Examination

Hypothesis One

H0: There is no significant relationship between socio demographic factors of respondents (age,education, occupation, marital status) and knowledge of BSE.

4.4.5 Relationship between Respondents' Socio-demographic Characteristics and Knowledge of Breast Self Examination

The relationship between socio-demographic factors of respondents and knowledge of BSE is shown in Table 4.13. None of the socio-demographic characteristics was significant with knowledge of BSE in this study. Age was not significantly associated with knowledge of breast self examination among the respondents. Though respondents aged 22 to 29 years were more knowledgeable (70.2%) than respondents aged 15 to 21years (29.8%), chi square value still showed no significant association between age and knowledge ($p>0.05$). Similarly, education was not significantly associated with knowledge of breast self examination among the respondents though respondents with tertiary education were more knowledgeable (61.4%) than respondents with secondary (36.8%) and primary education (1.8%) ($p>0.05$). Occupation was not significant with knowledge of breast self examination. Students (47.4%) were more knowledgeable compared to business women (12.3%), housewives (1.8%), workers (19.3%), artisans (5.3%) and applicants (14.0%) ($p>0.05$).

Similarly marital status and religion were not significantly associated with knowledge of breast self examination among the respondents as shown in the table. Respondents who were single were more knowledgeable (77.2%) than respondents who were married (21.1%) and cohabiting (1.8%)($p>0.05$). Religion was also not significantly associated with knowledge of breast self examination among the respondents as shown in the table though respondents who were Christians were more knowledgeable (84.2%) than respondents who were Muslims (15.8%) ($p>0.05$).

Decision

Based on the result shown in table 4.13, the null hypothesis which states that there is no significant relationship between socio demographic characteristics of respondents and knowledge of BSE is accepted.

Table 4.11: Relationship between Respondents' Socio-demographic Characteristics and Knowledge of Breast Self Examination

Variable	Knowledge of BSE			Statistics
	Poor Knowledge (%)	Good Knowledge (%)	Total (%)	
Age				X^2 = 1.53 df = 1 P = 0.214
15-21	57 (40.6)	17(29.8)	71 (37.4)	
22-29	77 (59.4)	40 (70.2)	117 (62.6)	
Total	133(70)	57(30)	190 (100.0)	
Education				X^2 = 4.78 df =2 P = 0.091
Primary Education	12(9)	1 (1.8)	13 (6.8)	
Secondary Education	57 (42.9)	21 (36.8)	78(41.1)	
Tertiary Education	64 (48.1)	35 (61.4)	99 (52.1)	
Total	133 (70.0)	57 (30.0)	100 (54.9)	
Occupation				X^2 =6.38 df= 5 P = 0.275
Students	82 (61.7)	27 (47.4)	111 (58.4)	
Business women	18 (13.5)	7 (12.3)	25 (13.2)	
Housewives	1 (0.8)	1 (1.8)	2 (1.1)	
Workers	11(8.3)	11(19.3)	22(11.6)	
Artisans	6(4.5)	3(5.3)	9(4.7)	
Applicants	15(11.3)	8(14.0)	23(12.1)	
Total	133(70)	57(30)	190 (100.0)	
Marital Status				X^2 =1.59 df= 3 P = 0.662
Single	100 (75.2)	44(77.2)	144 (75.8)	
Cohabiting	4 (3.0)	1 (1.8)	5 (2.6)	
Married	26(19.5)	12 (21.1)	38(20.0)	
Separated	3(2.3)	0 (0.0)	3(1.6)	
Total	133(70)	57(30)	190(100)	
Religion				X^2 = 5.35 df= 3 P = 0.148
Christianity	93(69.9)	48(84.2)	141(74.2)	
Muslims	34(25.6)	9(15.8)	43(22.6)	
Traditional religion	2(1.5)	0(0)	2(1.1)	
Others(Irikrishional)	4(3.0)	0(0)	4(2.1)	
Total	133	57	190	

4.5 Respondents' Practice of Breast Self-Examination

Majority (67.8%) of the respondents indicated that they did not currently practise BSE. Among those who practised the examination (32.2%), reported practice frequency of BSE was monthly (44.5%), weekly (26.9%), daily (22.7%) and yearly (5.9%). Most (69.7%) reportedly started practising BSE between ages 15 and 21 years. The median age of respondents when they started practising BSE was 18. Overall, 58.4% of the respondents correctly described how to do BSE. Of these, 33.6% reported standing and raising their hands while examining their breasts, 24.8% reported lying down while examining their breasts. Slightly more than half (58.4%) of the respondents correctly described how to do BSE. Of these, 33.6% reported standing and raising their hands to perform BSE while 24.8% reported lying down to do the examination. In respect to places where respondents carried out BSE, the most cited place was the bedroom (44.5%) followed by the bathroom (42.9%) and sitting room (12.6%). When asked what made respondents start practising BSE, the main responses were "talks about BSE from friends, teachers, peers and medical students" (28%), fear of having breast cancer (17.8%) and awareness on breast cancer created through the mass media (14.6%). Others are shown in table 4.14.

Majority of the focus group discussants reported low practice of BSE as well as low knowledge of the examination. Most respondents stated that out of ten women, only one or two would have performed BSE.

A discussant said:

"I would say that out of ten women, only one or two practise BSE. Women hardly have time for such things. Is it someone who wakes up in the morning and prepares the children for school and then rushes off to work that you will ask to do breast self examination? When she comes back in the evening, she is tired. So where is the time to do breast self examination?'' (A young adult from Eleyele Oja)

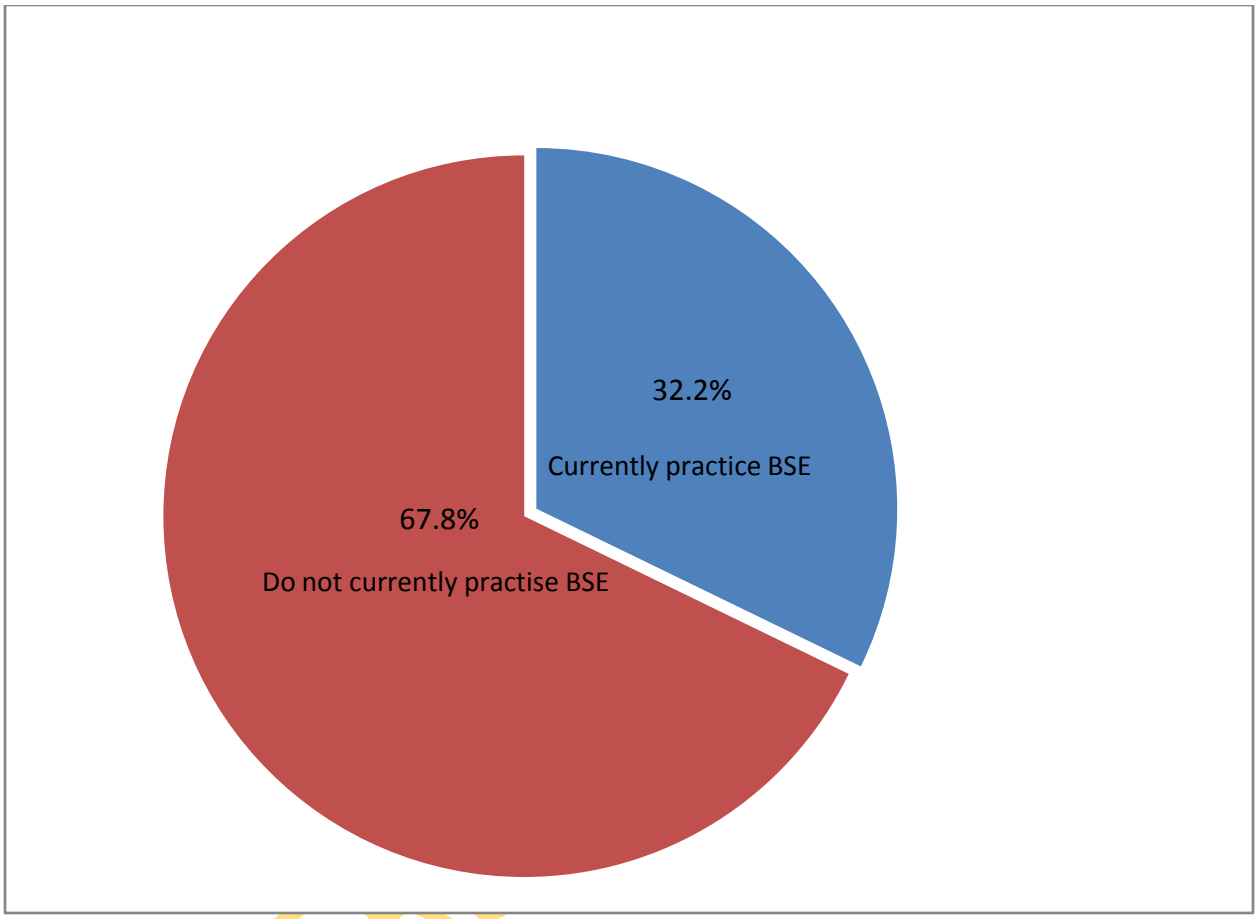

Fig 4.3: Respondents'current practice of breast self examination

8Table 4.12: Respondents' Practice of Breast Self-Examination

Practice	No	(%)
At what age did you start practising BSE?(N=119)		
15-21years	83	69.7
22-29years	23	19.3
Less than 15years	13	11.0
How often do you perform BSE?(N=119)		
Monthly	53	44.5
Weekly	32	26.9
Daily	27	22.7
Yearly	7	5.9
***Steps taken when performing BSE (N=137)**		
Stand, raise hand and examine breast	46	33.6
Lie down and examine breast	34	24.8
Press breast and check for any abnormality	24	17.5
Clean breast with soap, dettol and water	17	12.4
Press breast and wash it well	16	11.7
Where do you normally carry out BSE? (N=119)		
In the bedroom	53	44.5
In the bathroom	51	42.9
In the sitting room	15	12.6
Which posture do you assume when doing BSE? (N=119)		
Standing	77	64.7
Lying down	36	30.3
Sitting down	6	5.0
***What initiated your practice of BSE? (N=157)**		
Talks about BSE from friends, teachers, peers and medical students	44	28.0
Fear of having breast cancer	28	17.8
Awareness on breast cancer created through the mass media	23	14.6
Read about BSE in a magazine	21	13.4
I saw a victim of breast cancer who died of the disease	18	11.5
The increasing spread of breast cancer	13	8.3
Talks about BSE and breast hygiene given in antenatal clinics	10	6.4

Hypothesis Two

H0: There is no significant relationship between socio-demographic factors of respondents (age, education, occupation, marital status) and practice of BSE.

4.5.1 Relationship between Respondents' Socio-demographic Characteristics and Breast Self Examination Practice

The relationship between socio-demographic factors of respondents and practice of BSE is shown in table 4.15. The socio-demographic factors, age and education were found to be statistically significant with practice of BSE. Respondents aged 22 to 29 years practised BSE more (66.4%) compared to respondents aged 15 to 21 years (33.6%)($p<0.05$). Education was also significantly associated with practice of breast self examination as respondents with tertiary education (58.8%) were more likely to practise BSE compared to respondents with secondary (36.1%) and primary education (5.0%) ($p<0.05$). Occupation was not significantly associated with practice of breast self examination among the respondents as shown in the table. Students (50.4%) practised BSE more compared to business women (16.0%), housewives (1.7%), workers (13.4%), artisans (5.9%) and applicants (12.6%) ($p>0.05$). Marital status was not significantly associated with practice of breast self examination among the respondents as shown in the table though respondents who were single (68.9%) practised BSE more compared to those who were married (27.7%) and those cohabiting (2.5%) and those separated (0.8%)($p>0.05$). Religion was also not significantly associated with knowledge of breast self examination among the respondents as shown in the table. Respondents who were Christians (77.3%) practised BSE more compared to Muslims (20.2%) and other religions (0.9%)($p>0.05$).

Decision

Based on the results shown in table 4.15, the alternate hypothesis which states that there is a significant relationship between socio demographic characteristics of respondents and practice of BSE is accepted.

Table 4.13: Relationship between Socio-demographic Characteristics of Respondents and Practice of Breast Self Examination

Variable	Practice of BSE			Statistics
	Yes (%)	No (%)	Total (%)	
Age				$X^{2} = 6.34$
15-21	40 (33.6)	117(46.6)	157 (42.4)	df = 1
22-29	79 (66.4)	134 (53.5)	213 (57.6)	P = 0.012
Total	119(32.2)	251	370 (100.0)	
Education				
Primary Education	6(5)	21 (8.4)	27 (7.3)	$X^{2} = 17.37$
Secondary Education	43 (36.1)	97(36.8)	183 (49.5)	df =2
Tertiary Education	70(58.8)	90 (35.9)	160 (43.2)	P = 0.000
Total	119(32.2)	251(67.8)	370 (100.0)	
Occupation				P < 0.05
Students	60 (50.4)	133 (53.0)	193 (52.2)	X^{2} =5.46
Business women	19 (16.0)	55 (21.9)	74 (20.0)	df = 5
Housewives	2 (1.7)	2 (0.8)	4 (1.1)	P = 0.330
Workers	16(13.4)	19(7.6)	35(9.5)	P > 0.05
Artisans	7(5.9)	16(6.4)	23(6.2)	
Applicants	15(12.6)	26(10.4)	41(11.1)	
Marital Status				X^{2} =3.59
Single	82(68.9)	193(76.9)	275 (74.3)	df = 3
Cohabiting	3 (2.5)	5 (2.0)	8(2.2)	P = 0.309
Married	33(27.7)	49 (19.5)	82 (22.2)	P > 0.05
Separated	1(0.8%)	4(1.6%)	5(1.4)	
Total	119(32.2)	251(67.8)	370 (100.0)	
Religion				
Christians	92(77.3)	171(68.1)	263 (71.1)	X^{2} =4.52
Muslims	24(20.2)	74 (29.5)	98 (26.5)	df = 3
Traditional religion	0(0)	1 (0.4)	1(0.3%)	P = 0.210
Others(eckankar)	1(0.9%)	1(0.4%)	2(0.5)	P > 0.05
Total	119(32.2)	251(67.8)	370(100)	

4.5.2 Predictors of Practice of Breast Self Examination

Given that age and education were found to be statistically associated with practice of BSE, logistic analysis regression was used to explore the strength of significance for each of these contributory factors to practice of breast self examination. Table 4.16 shows that respondents aged 15 to 21 years were 1.7 times less likely to practise BSE compared to those aged 22 to 29 years (OR= 0.580, C.I=0.368-0.913). Respondents with primary education were 2.72 times less likely to practise BSE compared to respondents with tertiary education (OR= 0.367, C.I=0.141-0.959) while respondents with secondary education were 2.53 times less likely to practise BSE compared to those with tertiary education (OR= 0.395, C.I=0.249-0.627). Age of respondents and educational status were found to be strong predictors of BSE practice with educational status being a stronger predictor.

Table 4.14: Predictors of Practice of Breast Self Examination

Variable		**Odds Ratio**	**Sig(P)**	**95% Confidence Interval (C.I)**	
				Lower	**Upper**
Age	15-21	0.580	0.019	0.368	0.913
	22-29(Ref)				
Educational Status	Primary	0.367	0.041	0.141	0.959
	Secondary	0.395	0.000	0.249	0.627
	Tertiary(Ref)				

4.5.3 Respondents'Intention to Practice BSE and Perceived Self Efficacy

Table 4.17 shows respondents' intention to practise BSE. More than half (68.1%) of the respondents declared their intention to practise BSE. More than a third (37%) indicated their intention to start practising BSE within the current year while 13.5% reported that they would start practising the examination as soon as they knew how to do it (Others are shown in table 4.17). Self efficacy of future intention indicated that about 43.3% of the respondents reported confidence in performing BSE.

The results of the FGDs were similar to that of the survey. Most discussants indicated their intention to practice BSE. They however expressed lack of confidence in performing the examination. The following are some of the discussants' quotes.

"I would like to practise BSE in the future since it is for my own good, but I do not know how it is done". (An adolescent from Benjamin area)

"Even though I would like to perform BSE in the future, I do not know how to do it."(An adolescent from Eleyele roundabout)

"I have no time for myself to do BSE but the truth is I really want to do it since it is beneficial. I will try hard to start doing it by making out time"

"As a person, I will like to do BSE in future but at the end of the day, I am already stressed out such that all I can think of is sleep".

Table 4.15: Respondents' Intention to Practice BSE

Statement	Frequency	Percentage
Do you intend to practice BSE in the future? (N=370)		
Yes	252	68.1
No	89	24.1
No response	29	6.8
*When do you intend to start practising BSE? (N=272)		
Within the current year	137	37.0
When respondent knows how to perform BSE	50	13.5
2-5 years time	32	8.6
When respondent gets pregnant	27	7.3
When respondent gets married	26	7.0

*Multiple Response

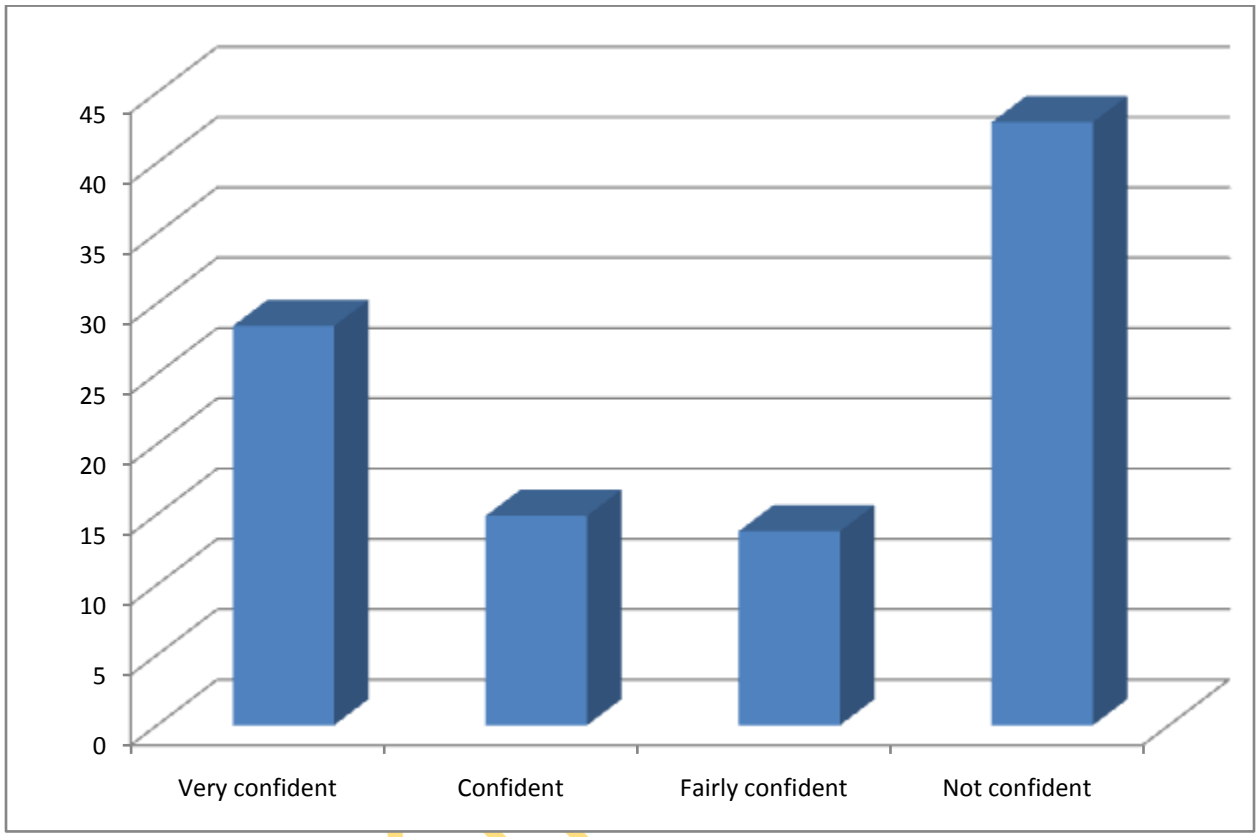

Fig 4.4: Respondent's perceived self efficacy of practising breast self examination

4.5.4 Relationship between Some Socio-demographic Variables, Other Variables and Respondents' Intention to Practise Breast Self Examination

The relationship between selected variables of age, education, marital status, age at birth of first child among others and respondents' intention to practise BSE is shown in table 4.18. Of all the variables, only respondents' awareness of BSE was found to be significant with intention to practise BSE (P=0.000).

Table 4.16: Result of Chi-square Test of Significance for Some Variables with Respondents' Intention to Practise BSE

Variable	X^2	df	P
Age	7.271	1	0.070
Education	2.660	2	0.265
Marital Status	5.901	3	0.117
Age at birth of first child	1.191	1	0.275
Personal history of breast cancer	0.101	1	0.750
Family history of breast cancer	0.000	1	0.986
Risk of having breast cancer	3.841	1	0.050
Ever heard of BSE	19.584	1	0.000

4.5.5 Respondents' Reasons for not Practising BSE

More than a third (48.6%) of the respondents identified lack of knowledge as a major reason for not practising as shown in table 4.19. Other reasons identified include belief of non vulnerability to breast cancer 56 (19.2%) and lack of time (17.8%).

Two reasons for not practising BSE emerged from the FGDs. They were lack of knowledge and lack of time. The following are some of the discussants' quotes.

"I do not practise BSE because I do not know how it is done."(A young adult from Olopomewa)

"I do not perform the examination because I do not know how it is done. A friend of mine once mentioned it, but she does not know how to do it just like me. ". (An adolescent from Eleyele roundabout)

"Even though I know a little about BSE, I do not always have time to do it."(An adolescent from Eleyele roundabout)

"At present we women are very busy. We have to do all household chores. This is true for my neighbors as well. Our husbands just have a rest and watch TV at home. We are always in a rush. We don't have time to do BSE". ."(A young adult from Eleyele Oja).

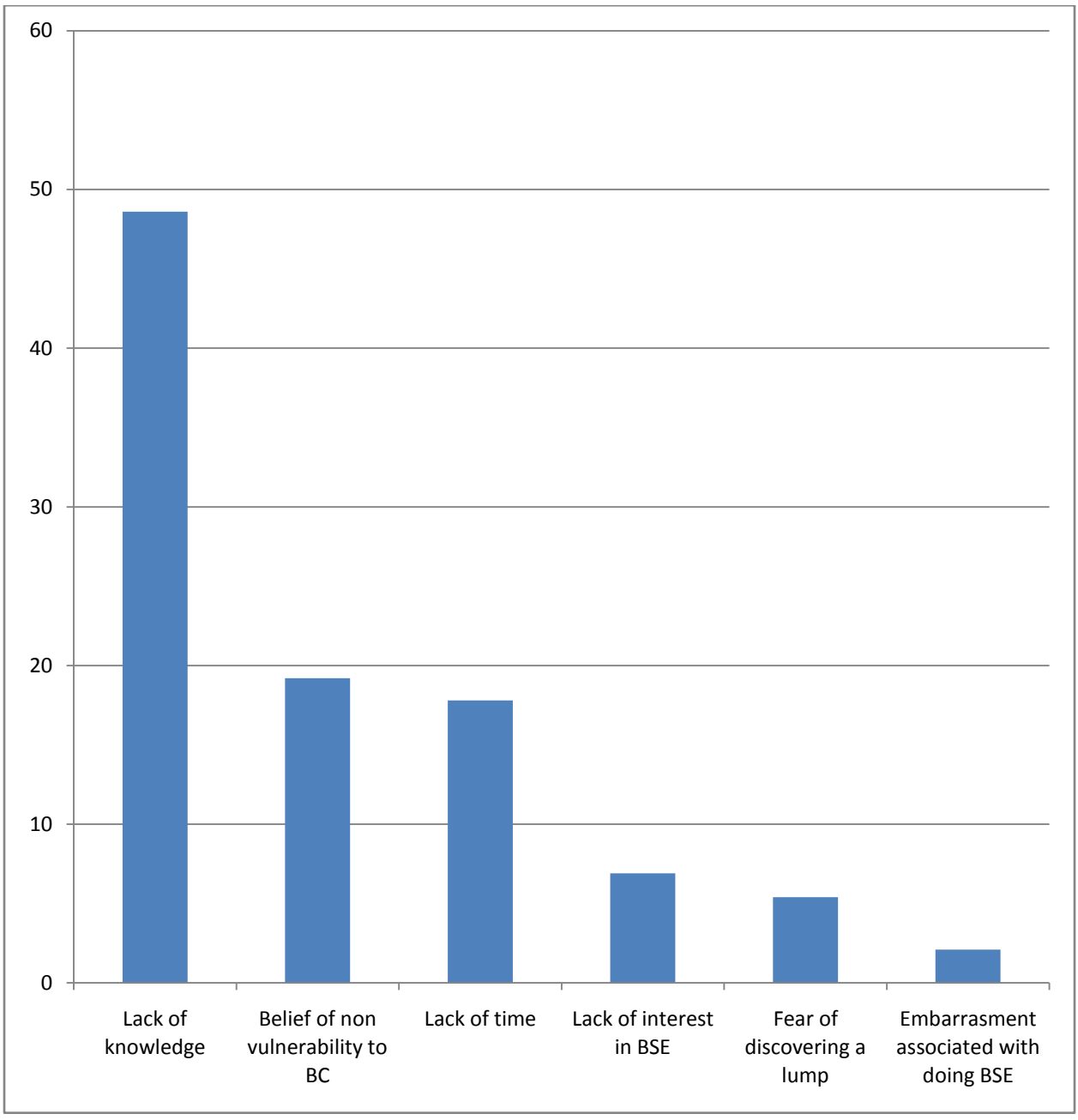

Fig 4.5: Respondents' reasons for not practising breast self examination

4.5.6 Respondents' Suggestions for Increased Practice of BSE

Majority (58.4%) of the respondents suggested that increased awareness and enlightenment campaigns on BSE would make them practise BSE. Other suggestions include desire to prevent breast cancer (20.6%) and having more time to do BSE (2.7%). Others are shown in table 4.20.

Two main suggestions for increased practice of BSE were given by the FGD discussants. They were enlightenment campaigns and talks about BSE from mothers. The following are their quotes.

"If awareness campaigns can be done in our community from time to time, it will increase our practice of BSE."

"Among we mothers, if there is anyone of us who knows how to do BSE, then we should gather our female children who are of age together and educate them."(A young adult, Olopomewa)

"Those of us mothers who are knowledgeable about BSE and live in big compounds where there are many young females who can do BSE could gather them together once in a while (maybe on weekends) and educate them about the examination."(A young adult from Eleyele roundabout)

Table 4.17 Respondents' suggestions for increased practice of BSE (n=262)

S/N	What things will make you practise breast self examination? (N=262)	Frequency	(%)
1	Increased awareness and enlightenment campaigns on importance of BSE	153	58.4
2	Desire to prevent breast cancer	54	20.6
3	Nothing can make me perform BSE	35	7.8
4	Having more time to do BSE	7	2.7
5	Marriage	7	2.7
6	Feeling pain in the breast	2	0.8
8	Desire to know the status of my breast	2	0.8

* Multiple Responses

Hypothesis Three

H0: There is no significant relationship between knowledge of BSE and its practice.

4.5.7 Relationship between Respondents' Knowledge of Breast Self Examination and Practice

The relationship between knowledge of BSE and its practice is shown in Table 4.21.

The result indicated a significant relationship between respondents' knowledge of BSE and practice. Respondents who had poor knowledge of BSE practised the examination more (61.3%) than respondents who had good knowledge (38.7%) ($p<0.05$).

Based on the result shown in Table 4.21, the alternate hypothesis which states that there is a relationship between respondents' knowledge of BSE and practice is accepted.

Table 4.18: Relationship between Respondents' Knowledge of BSE and Practice

Knowledge score of BSE	Practice of BSE			
	Yes (%)	No (%)	Total (%)	Statistics
Poor knowledge	65 (61.3)	68 (81.0)	133 (70.0)	$X^2 = 8.60$
Good knowledge	41 (38.7)	16 (19.0)	57 (30.0)	P = 0.006
Total	106	84	190 (100.0)	

4.5.8 Relationship between Respondents' Breast Cancer Risk Perception and Breast Self Examination Practice

Table 4.22 shows the relationship between perceived risk of having breast cancer and practice of BSE. There is no significant relationship between risk of having breast cancer and practice of BSE ($p>0.05$) as shown in table 4.22.

Table 4.19: Relationship between Breast Cancer Risk Perception and BSE Practice

Variable	Do you currently practise BSE? Yes	No	Statistics
Are you at risk of having breast cancer			
Yes	12 (10.1)	37(14.7)	$X^2 = 1.524$
No	107(89.9)	214(85.3)	df= 1
Total	119 (32.2)	251(67.8)	P = 0.252

4.5.9 Relationship between Respondents' Self Efficacy and Practice of Breast Self Examination

Table 4.22 shows the relationship between respondents' self efficacy and practice of breast self examination. There is a significant relationship between self efficacy of performing BSE and its practice ($p<0.05$). As the level of confidence of respondents in performing BSE increased, the likelihood of practice also increased as follows: not confident (5.9%), fairly confident (10.9%), confident (22.7%) and very confident (60.5%).

Table 4.20: Relationship between Respondents' Self Efficacy and Practice of BSE

Variable	**Practice of BSE**			**Statistics**
Self Efficacy	**Yes (%)**	**No (%)**	**Total (%)**	$X^2 = 128.21$ df =3 P = 0.000
Very confident	72 (60.5)	33(13.1)	105 (13.1)	
Confident	27 (22.7)	28 (11.2)	55 (14.9)	
Fairly confident	13(10.9)	38(10.3)	51(13.8)	
Not confident	7(5.9)	152(60.6)	159(43.0)	
Total	119	251	370(100)	

4.5.10 Relationship between Respondents' Family History of Breast Cancer and Practice of Breast Self Examination

Respondents without a family history of breast cancer practised BSE more (89.3%) compared to those with a family history of breast cancer (10.7%)($p<0.05$). This is shown in table 4.24.

Table 4.21: Relationship between Respondents' Family History of Breast Cancer and Practice of Breast Self Examination

Family History of breast cancer	Practice of BSE			
Positive family history of breast cancer	12(10.7)	10(4.2)	22(6.3)	$X^2 = 128.21$ df =3 P = 0.000
Negative family history of breast cancer	100(89.3)	230(95.8)	330(93.7)	
Total	112	240	352(100)	

CHAPTER FIVE

5.0 DISCUSSION

This chapter is organised into eight sub-sections as follow: knowledge and awareness of breast cancer; perceived susceptibility, knowledge and awareness of breast self examination, practice of breast self examination, intention to practice breast self examination and implications of the findings for health education. The chapter ends with the conclusion and recommendations.

5.1 Socio-Demographic Characteristics of Respondents

The age of the respondents in this study ranged between 15 and 29 years. Majority were Yoruba. This is not surprising as the study community is a Yoruba community.Most respondents were single and Christians. Most of the respondents were students and low income earners.

The respondents' median parity was 2. Majority had between 1 and 2 children. Majority of the respondents were adolescents and young adults (between ages 17 and 24 years) when they had their first child.

5.2 Awareness and Knowledge of Breast Cancer

Most of the respondents were aware of breast cancer although awareness of breast cancer screening methods was low. Few of the respondents identified breast self examination as a breast cancer screening method. The other breast cancer screening methods identified by the respondents were medical check up and chemotherapy. The percentage of respondents in the current study who reported BSE as a breast cancer screening method was lower than that reported in the study of Ahmed (2010) where 62.8% of the respondents said that BSE was the screening method for detection of the disease followed by clinical breast examination 32.2%. The result from this study is also lower than that reported by Dandash and Al-Mohaimeed (2007) where the most familiar breast cancer detection method among female teachers was BSE followed by clinical breast examination (CBE). Another study conducted by Parsa et al. (2008) also revealed that BSE was the screening method for detection of BC among female teachers in Selangor and Malaysia. Similar results found among female teachers in Saudi Arabia (Buraidah) showed that BSE was mentioned as a breast cancer screening method (Dandash et al., 2007).

Poor knowledge of the causes of breast cancer was observed in this study, the most cited cause being keeping money in the brassiere. Lumps were the most commonly identified symptom of breast cancer. Some studies have also reported lumps as the most cited symptom of breast cancer (Oluwatosin and Oladepo 2006; Salaudeen et al., 2009; Manzoor, Masood and Kumar, 2009; Osime, Okojie, Aigbekaen and Aigbekaen, 2008; Khanjani, Noori and Rostami, 2012). Majority of the respondents reported that breast cancer could be prevented though knowledge of methods of prevention of the disease was poor. Respondents believed that good personal hygiene, not putting money in the brassiere and performing breast self examination and not having many boyfriends would suffice in preventing breast cancer. Some authors have also reported poor knowledge of methods of preventing breast cancer (Parsa et al, 2005; Omotara, Yahya, Amodu and Bimba, 2012; Akhigbe et al., 2009).

5.3 Awareness and Knowledge of Breast Self Examination

Majority of the respondents in this study had heard about BSE. This is however not surprising as most of the study participants had at least a secondary education and may have at various times in their educational pursuit been exposed to information on BSE. The result of this study is similar to that reported by Oladepo and Adegoke (1997) in which the level of awareness was 84.6%. The rate of awareness in the current study is however comparatively higher than that found among the general population of Sudan and Saudi Arabia (66.5% and 30.3%, respectively) (Abdelrahman and Yousif, 2006; Jahan et al., 2006). The result from this study is also higher than that conducted in a similar study among market women where 31.7% of the respondents were aware of breast self examination (Balogun and Owoaje, 2005). This could be as a result of the fact that the women in this study had a higher level of education than those in the study of Balogun et al. (2005) who were market women. The level of awareness in this study was also found to be higher than 6.7% of high school girls studied in Turkey who performed BSE monthly and 20.3% of the students who performed BSE irregularly (Karayurt et al., 2008) but lower than awareness of BSE among Jordanian women where 91.4% indicated awareness of BSE and 85% of female civil servants studied in Benin (Osime et al., 2008; Jaradeen 2010). The finding in this study is however at variance with the study of Isara et al (2011) where awareness of BSE was low but consistent with the study of Gwarzo et al (2009) where awareness of BSE was high.

The major source of information in this study was the mass media. Similar observations about the respondents' major source of information were reported in Ilorin, Kwara State, Nigeria where 29.7% of those studied indicated that the mass media was their first source of information. The least proportion of the respondents heard about it for the first time from health personnel (Kayode et al., 2005). Other studies found that nearly half of the students reported their main sources of information on breast cancer and BSE was the media (Budden 1995; Milaat 2000; Karayurt et al., 2008). This is however different from the result of the study of Seif and Aziz (2000) where the main source of information was peer group. This could be as a result of the fact that the women spent a long time at work which gave them the opportunity to discuss different issues.

Other studies have also revealed that mass media was the main source of information on BSE (Seif et al., 2000; Salaudeen et al., 2009 and Özgul et al., 2008). A Turkish study also reported that 48.6% of those studied indicated the media as their main source of information about BSE (Özgul et al., 2008). Other sources of information about BSE reported in this study include health professionals and peer group. This is similar to findings among secondary school female teachers in Nigeria who reported friends as their source of information about BSE (Kayode et al., 2005). Similar findings were also observed in a study carried out in Kuwait where the women reported that friends were the main source of knowledge about BSE (Ahmed, 2010).

Knowledge of BSE was low among the respondents in this study. This is not surprising as dissemination of information on BSE is not routinely done at the Primary Health Care clinic in the area of study. The result of this study is consistent with the study of Gwarzo et al. (2009) where less than half of the respondents were knowledgeable about BSE, but contrasts the study of Mbanaso et al. (2005) among medical students who were mostly knowledgeable about BSE. With regards to benefits of BSE , majority of the respondents in this study mentioned early detection of breast cancer and reduction in chances of having breast cancer as benefits of BSE while the most cited abnormality that could be detected during BSE was a lump, followed by pains and swollen breasts.

5.4 Perceived Seriousness and Susceptibility to Breast Cancer

Most of the respondents perceived breast cancer to be a serious disease. A study conducted by Ahmed (2010) also showed that most of the participants believed that BC was a serious disease.

Most of the respondents in this study had an inaccurate perception of their risk of developing breast cancer as they reported that they were not at risk of having the disease. According to the National Cancer Institute (2009) besides being female, age is the most important risk factor for breast cancer. Increasing age has been reported to be a breast cancer risk factor for women of all ages (Bleyer et al., 2008). Breast cancer has also been reported to be the most frequently diagnosed cancer among young women 15 to 39 years of age (Bleyer et al., 2008).Furthermore, a study carried out in Nigeria, reported that increasing age was positively associated with the risk of developing breast cancer (Adesunkanmi, Lawal, Adelusola and Durosimi, 2006**).** In this study, out of a total of 212 patients on hospital admission studied to determine the severity, pattern, outcome and challenges of breast cancer, results showed that 2% of the patients were below the age of 30 years (the same age group with respondents in the current study).

Further lending credence to the inaccurate perception of breast cancer risk among respondents in the current study is a study by Hopwood (2000) which showed that women's perceptions of breast cancer risk were largely inaccurate. Furthermore, a study conducted by Woloshin, Schwartz, Black and Welch (1999) showed that women who were actually in the 'high-risk' group underestimated their risk compared with the average woman, raising the possibility of an 'optimistic bias' in risk perception. The result of the current study is similar to findings from a study which reported that although a large proportion of the women perceived breast cancer as a serious disease, most of them did not perceive themselves as being susceptible (Parsa, Kandiah and Parsa, 2008).

5.5 Practice of Breast Self Examination

Level of practice of BSE among the respondents in this study was low. Several studies have documented low level of practice of BSE (Gwarzo et al., 2008;Parsaand Kandiah, 2005, Balogun et al., 2005; Dundar et al, 2006; Ali Abu-Salem OT et al; 2007 and Guleser et al., 2009). Some other studies have also showed low level of practice of BSE. For instance,). In a study that was

conducted among South Asian women living in the United Kingdom aged above 40 years, it was found that 12% of participants practised BSE monthly (Choudhry et al., 1998). In a study among Chinese women in Hong Kong, only 16% reported that they performed BSE every month (Fung 1998).

The level of practice of BSE in this study is lower than 64% of women studied in the community of Santos Suarez who were patients and performed BSE probably as a result of clinic attendance, and also lower than 52% of nurses studied in Jordan who performed breast self examination (Ali Abu-Salem OT et al; 2007). The level of practice of BSE in the current study was also found to be lower than 84% of health professionals in Nigeria at the Abia State University Teaching Hospital, Aba, Abia State who reportedly practised BSE even though only 47.9% of them did so monthly and also lower than 52.4% of Turkish women who claimed to practice BSE even though only 17% did so monthly (Guleser et al, 2009). The result from this current study is also lower than the findings in a study carried out in Singapore where 37.3% of the nurses did not examine their breasts (Chong et al., 2002) and also lower than that carried out by Budden (1998) where 46% had reportedly practised BSE regularly at least once per month. The level of BSE practice in this study was however found to be higher than 19% of female students at the Ahmadu Bello University Zaria who reportedly practised BSE monthly (Gwarzo et al., 2008) but higher than 43.2% of Nigerian women who reportedly carried out the procedure in the past year (Okobia et al, 2006). The results from this study are also higher than 20.3% of adolescent females who reported irregular practice of BSE out of which only 6.7% practised BSE monthly (Karayurt et al., 2008), and also higher than 28% of Indian college-going students in Rajashthan who examined their breasts rarely or never (Yadav and Jaroli, 2010). Similarly, the level of practice of BSE from this study is also higher than 25% of female students of University of Ibadan who reportedly practised BSE regularly (Asuzu et al, 2007), 37% of female students in an Australian university who reportedly practised BSE (Budden 1995) and a European study where 14.8% of students aged 17 to 30 years reportedly practised BSE on a monthly basis (Wardle et al. 1995). Further, the result of this current study is also higher than that reported in a Malaysian study where only 1.3% of women attending a Malaysian Well-Person's Clinic were found to practice BSE regularly (Chan 1999). It is also higher than 3.4% of teenagers studied by Ludwick and

Gaczkowski (2001) who reported that they practiced BSE monthly, and 27% of female nursing students who practised BSE monthly (Dittmar et al., 1989).

The finding in this current study is however consistent with that of a study in Nigeria, where 59.1% had ever practiced BSE (Uche 1998).

The median age at which respondents in the current study started practising BSE was 18 (an age slightly below that recommended by the American Cancer Society). According to the American Cancer Society, every woman, 20 years and above should begin practising BSE. It is surprising to note that this study revealed that respondents with poor knowledge of BSE performed the examination more, compared to those with good knowledge. This shows that knowledge does not always translate to practice. Some studies have revealed low practice of breast self examination among health practitioners who should know more about BSE than the generality of women (Guleser, Unalan and Akyidz, 2009). The study reported that although 52.4% of the health care workers interviewed reportedly practised BSE, only 17% reported doing so on a monthly basis.

This study also revealed that a significant relationship existed between self efficacy and BSE practice. Similar findings have been found in a study carried out by Puttahraska (2009) where a significant relationship was found between perceived self efficacy and practice of BSE among nursing students.

5.6 Factors which Influenced Practice of BSE

In this study, age significantly influenced the practice of BSE among the participants. Some studies have also reported statistically significant relationships between age and women's practice of breast self-examination (Parsa & Kandiah 2005, Alsaif 2004; Jarvandi 2002; Perssan et al. 1997 and Karayurt et al. 2008).

Level of education in the current study was also an important predictor of BSE practice. Similar studies among Malaysian women showed that women having a high education level were more likely to practice BSE ($p<0.05$) (Radman Al-Dubai, Ganasegeran, Alabsi, Manaf, Ijaz and Kassim, 2012).

5.7 Reasons for not Practising Breast Self Examination

With respect to the barriers to practising BSE, this current study has lent further support to the body of literature which identifies lack of knowledge, lack of time, fear of discovering a lump, embarrassment in performing BSE, forgetfulness, not having symptoms of BC and not having a feeling of breast cancer as barriers to the practice of BSE among women.

Consistent with the result of this study are studies carried out in Turkey and Iran where the young women noted that lack of knowledge prevented them from practising BSE (Karayurt et al., 2008; Montazeri et al., 2008). Another study in Malaysia conducted to determine female students' practices and barriers towards breast self-examination showed that the majority who never practised BSE mentioned lack of knowledge as a barrier. Similarly, another study carried out in Yemen to assess the knowledge, attitude and practice of breast cancer and breast self examination among female university students in Al-Mukalla city showed that majority of the respondents mentioned lack of knowledge about technique of BSE as a barrier for not practising BSE (Ahmed, 2009). Irurhe et al. (2012) also reported from his study which assessed knowledge and awareness of breast cancer among female secondary school students aged 12 to 18years old in Nigeria that more than a third of the respondents did not perform BSE because of lack of knowledge.

Similarly, Isara et al. (2011) from their study carried out among female secondary school female students in Abuja aged 13 to 22 years to determine knowledge of breast cancer and practice of BSE also reported lack of knowledge as a barrier to the practice of BSE by most of the students. Also consistent with the results of this study, are other studies where students reported that they did not perform BSE because they did not know how to do so (Cole & Gorman 1984; Ludwick & Gaczkowski 2001). In another study the most common reason for not doing BSE was lack of knowledge (Parsa and Kandiah, 2005). Similarly, other investigators have shown that the most common reason for not doing BSE was lack of knowledge (Jarvandi et al. 2002 and Seif et al, 2000).

Lack of time also prevented some of the respondents in this study from practising BSE. Some studies have also reported lack of time as a barrier to the practice of BSE among women. For

instance, Okolie et al. (2012) reported from their study of BSE among female undergraduate nursing students that more than a third of the respondents identified lack of time as a barrier to practising BSE. Also a study conducted among female undergraduates of the Ahmadu Bello University also showed that respondents identified lack of time as a barrier to practising BSE (Gwarzo et al, 2008). Another study conducted to assess the practice of BSE among adolescents and young adults aged 16 to 28 years in tertiary institutions in Ilorin, Nigeria, showed that 27% of the respondents indicated lack of time as a barrier to the practice of BSE (Salaudeen et al, 2009).

Fear of discovering a lump was identified by some respondents in this study as a barrier to practising BSE. Similarly, a fear of "finding something wrong" has been cited as a key obstacle to screening (BSE inclusive) among both Hispanic (Austin, Ahmad, Mcnally and Steward, 2002) and Black (Friedman, Webb, Weinberg, Lane and Cooper, 1995) groups and a feeling that "it is better not to know" is a reported barrier among several European samples (Ciatto, Cecchini, Isu, Maggi and Camelli, 1992; Donato, Bollanni and Spiazzi, 1992; Aro, Konning, Ansetz and Shreck, 2001). Some authors have reported that BSEs are frightening because of its association with cancer and death, and that concerns about the body's physicality can interact with mortality concerns to create resistance to the procedure itself, independent of health concerns associated with cancer (Goldengerg, Ardnt, Hart and Routledge, 2008). Olson & Morse, 1996 reported that BSEs were clearly threatening due to the fear of cancer while Olson & Morse, 1996; Race and Silverberg, 1996 and Consedine, Magai, Krivoshekova, Ryzewicz, & Neuget, 2004 worried and discomforted that aspects of the procedure itself may inhibit BSE behaviour . The finding from the current study is consistent with the results of other researchers in Iran (Jarvandi et al., 2002), Malaysia (Hisham and Yip, 2003), United Arab Emirates (Bener et al., 2002), Jordan (Petro-Nustas and Mikhail, 2002) and USA (Bastien, 2005). Similarly Al-Naggar et al, 2011 reported that a few participants were afraid of being diagnosed with breast cancer and that these fears and worries may be due to wrong perceptions that the women hold. A study carried out in Nigeria also revealed that some respondents identified fear of discovering a lump as a barrier to practising BSE (Oluwole, 2008).

Belief of non-vulnerability to breast cancer hindered some respondents in this study from practising BSE. Similarly, Akpinar et al. (2011) also reported from his study carried out among health professionals that the belief that they would not have breast cancer was a barrier to their practice of the examination.

Embarrassment associated with performing BSE was reported by some respondents in this study as a barrier to their practice of BSE. The embarrassment associated with the practice of BSE among women may not be unconnected with some cultural factors. For instance in the Turkish culture and religious beliefs, the female body and the breasts are taboo subjects (Yilmaz, Guler, Bekar and Guler, 2011). Similar to this result, some studies have also found that embarrassment was a barrier to the practice of BSE among women (Borrayo, Buki and Feigal, 2005; Ogedegbe et al., 2005; Kwok, Cant and Sullivan, 2005).

5.8 Respondents' Suggestion for Increased Practice of BSE

Increased awareness and enlightenment campaigns on importance of BSE and desire to prevent breast cancer were the major suggestions for increased practice of BSE given by the respondents in this study. Studies have demonstrated dramatic improvements in breast cancer screening among women after receiving health education (Somers, 1977; Oluwole, Fadiran and Odesanmi, 1987). Similarly, with the level of enlightenment during health education, there was an increase in the proportion of the respondents in the study group (76.0%) that ever practised breast self examination as opposed to 57.7% before intervention. This increase was statistically significant ($p<0.05$). There was no significant increase in the proportion of control group that ever practiced breast self examination. This finding supports the idea that health education is an effective tool for better health behaviour. With different sessions of health education, the proportion of the study group currently practising breast self examination increased from 32.6% to 62.9% as more people realized and adopted regular self examination of the breast. The observed difference in the study group was statistically significant, post intervention ($p<0.05$). However, there was no significant difference in the proportion of the control group currently practising breast self examination ($p> 0.05$) (Oluwole, Fadiran and Odesanmi, 1987).

5.9 Respondents' Intention to Practise Breast Self Examination

A very encouraging finding in the current study is that most of the respondents indicated their intention to practise breast self examination in the future. Similar to the result of this study are findings among female university students where 89.6% reported that they wanted to learn the method of BSE (Chioma and Asuzu, 2007) as well as that reported in a Saudi Arabian study where slightly more than two third of the respondents indicated their intention to perform breast self examination (Milaat, 2000). The indication of intention to practise BSE on the part of the respondents is key to the adoption of the practice in the nearest future. Awareness of BSE was found to be significant with intention to practise BSE in this study.

5.10 Implications of Findings for Health Education

Effective health promotion and education can help people to maintain and improve their health, reduce and manage illness. The role of education in the uptake of preventive services such as BSE has been reported repeatedly (Khokher et al., 2011; Ravichandran et al., 2011; Rasu et al., 2011). According to Galobardes et al. (2006) education is an enabling factor for the receipt and uptake of health information and services. This can thus improve the wellbeing and self-sufficiency of individuals, families, organizations and communities at large. (U.S Department of Health and Human Services, 2005). Health education is concerned with reinforcing and changing knowledge, attitudes and behaviour of people through effective communication of factual information, with the aim of helping them ensure optimum well-being.

In this regard, a BSE training programme should be developed for the young women in the community in which the data were collected.

A. The training program design should have three steps as follows:

1. Pre programme evaluation: the data from this study should be used as pre-program evaluation. The following issues constitute the training needs assessment baseline data

i Low knowledge of BSE
ii Low breast self examination practice
iii Low risk perception to breast cancer

Before commencement of the training, brainstorming questions on breast cancer and breast self examination should provide further information that should be added to the baseline training needs assessment.

2. Programme intervention: The proposed training goals and objectives are shown in table 5.1.

Table 5.1: Proposed Training Curriculum On Breast Self Examination For young Women In The Study Community

Session	Aim	Objective	Methods/ Techniques of Demonstration
Day 1	Improvement of the cognitive awareness of breast cancer	• Defining breast cancer • Knowing the prevalence of breast cancer • Knowing the seriousness of breast cancer • Knowing the symptoms of breast cancer	Lectures, Discussions
Day 2	Understand the importance of early diagnosis of breast cancer	• Know risk factors of breast cancer • Declare importance of early diagnosis • Declare methods of early diagnosis	Lectures, Discussions
Day 3	Learning to do breast self examination	• Express the importance of breast self examination • Know time to do breast self examination • Know frequency of doing breast self examination • Evaluate breasts with eyes on standing • Evaluate breasts with hands on standing	Practical sessions (use of breast models)
Day 4	Breast self examination efficacy	• Examine breasts with eyes on standing • Examine breasts with hands on standing • Examine breasts with hands on lying down	
Day 5	Learning to protect from breast cancer	• Understand the importance of protecting from breast cancer • Express the importance of lifestyle change for protection from breast cancer • Know the methods of protection from breast cancer	

The training should be both theory and practical based. The theory aspect should include lectures and discussions while the practical aspect should include trainer-led sessions and supervised practical sessions using breast models. Self explanatory pictures illustrating positions and procedures of BSE should be distributed to participants.

3. **Monitoring and Evaluation**:

   a. Process evaluation should be done as the training progresses to ascertain that training is going on as planned.

   b. Outcome evaluation should be done after completion of the training programme. This could be done at 3 different times as follows:

   i. Immediately after the training programme
   ii. Three months after the training programme
   iii. Six months after the training programme

5.11 Conclusion

The level of awareness of breast cancer by respondents in this study was high. This however had little or no effect on knowledge of breast cancer as respondent's knowledge of the disease was low.

The respondents' perception of seriousness of breast cancer was high. The respondents in this study did not have an accurate perception of their breast cancer risk as most did not believe themselves to be at risk of having breast cancer.

Knowledge of breast self examination as a breast cancer screening method was low. This constituted a hindrance to the practice of breast self examination which is also a breast cancer screening method. Breast self examination practice was expectedly low since lack of knowledge of it prevailed. Furthermore, self efficacy was low among those that practised it. Overall, respondents' intention to practise breast self examination was high as most indicated their willingness to practisethe examinationt in the future.

5.12 Recommendations

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

1. Special Health talks on breast cancer and breast self examination should be delivered to young women through their peers.
2. BSE training should be organised in schools to promote the adoption of the examination.
3. The mass media, especially the radio and the television should be used for disseminating information on breast self examination.
4. PHC workers should engage in community BSE campaigns
5. Faith-based organizations (FBOs) should train members on BSE using audio-visuals and breast models, supplemented with IEC materials such as pamphlets and handbills.
6. Men should encourage their partners to examine their breasts regularly and report to a health facility whenever any abnormality is noticed. Men can also help in detecting breast cancer symptoms in their partners.
7. Local women's meetings should be used as fora to train women on BSE and subsequent meetings should serve as reminders for the women to always perform BSE.
8. Available social support groupsshould help topromote the adoption of breast self examination among young women by providing information on the examination and encouraging them to perform the examination regularly.

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FOCUS GROUP DISCUSSION GUIDE (FGD)

FACTORS INFLUENCING THE PRACTICE OF BREAST SELF EXAMINATION AMONG YOUNG WOMEN IN IBADAN NORTH WEST LOCAL GOVERNMENT AREA, OYO STATE.

My name is ----------. I am from the department of Health Promotion and Education, College of Medicine, University of Ibadan. I am carrying out a research on factors influencing knowledge and practice of breast self-examination among young women in Ibadan North West LGA. I would like to hold a brief discussion with you and would be glad if you could spare some minutes. Please note that participation is voluntary. Feel free to discuss because all we shall talk about shall be confidential. Kindly permit me to use a tape recorder so as to capture your responses and later translate them. Thank you.

1. What are the health problems women face today?
2. Have you heard of breast cancer?
3. What is breast cancer?
4. Do you know of any method of preventing breast cancer?
5. Have you heard of BSE?
6. What is breast self examination?
7. How is it done?
8. To what extent are females practising BSE?
9. What are your suggestions for improving the practice of BSE among women?

APPENDIX IB

IFOROJOMITORO ORO PELU OLUDAHUN IBEERE

AWON OHUN TO NSE ATONA SISE AYEWO OMU ARA ENI NI ARIN AWON ODOMOBINRIN NI IJOBA IBILE ARIWA IWO-ORUN NI IPINLE OYO.

Oruko mi ni ----------. Mo wa lati eka imudagbasoke eto ilera ati imo eko ilera ti yunifasiti Ibadan. Mo nse iwadi lori awon ohun ti o jemo imo ati ise yiyearaenilomuwo ni aarin awon odomobinrin. Mo fe ni iforojomitoro oro bintin pelu yin. inu mi yi o si dun bi e ba le fun mi die nini akoko yin. A ko fi ipa mu enikeni lati kopa ninu eto yi. Nitori naa eni ti o ba wu ni o le kopa. Gbogbo ohun ti a ba jo jiroro le lori ni yoo wa ni bonkele. E jowo, e gba mi laye lati fi ero agbohunsile gba gbogbo awon esi ti e ba fun mi .E se, mo dupe.

1. Kini awon aisan ti awon obinrin ode isinyin ma n ni?
2. Nje o ti gbo nipa jejere oyan?
3. Kini jejere oyan?
4. Nje o mo ona kankan ti a fi le dena jejere oyan?
5. Nje o ti gbo nipa yiye ara eni lomu wo?
6. Kini yiyearaenilomuwo?
7. Bawo ni a se n se?
8. Bawo ni awon obinrin ti nye ara won lomuwo to?
9. Amoran wo ni o ni da lati pe ki ise yiye ara eni lomu wo le ma goke si ni aarin awon obinrin?

APPENDIX II

QUESTIONNAIRE

FACTORS INFLUENCING THE PRACTICE OF BREAST SELF EXAMINATION PRACTICE AMONG YOUNG WOMEN IN IBADAN NORTH WEST LOCAL GOVERNMENT AREA, OYO STATE.

Dear Respondent,

My name is Adetona Adebanke, a post graduate student of the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan. I am conducting a study on factors influencing knowledge and practice of breast self-examination among young women in Ibadan North West Local Government Area, Oyo State.
I wish to inform you that there are no right or wrong answer to the questions I will ask you. Please, be informed that participation is voluntary. Your identity, responses and opinions will be kept confidential and no name is required in filling the questionnaire. Please try as much as possible to give honest responses to the questions I will ask you. You are free to ask questions as the interview progresseGs. Confidentiality is assured as you are not expected to write your name.

Are you willing to participate in this study? Yes/No.

Instruction: Please tick (✓) the appropriate place as applicable to you and endeavour to answer all the questions as honest as possible. Thank you for your participation.

SECTION A (Demographic Characteristics)

1. Age at last birthday …….
2. Occupation:…….
3. How much do you earn in a month?.....
4. Highest level of education attained. 1. Primary☐ 2. secondary☐ 3. Tertiary ☐ .4.None of the above ☐
5. Marital status: 1. Single ☐ 2. Cohabiting ☐ 3.Married☐ 4.Separated ☐ 5.Divorced ☐ 6. Widowed ☐

6. Religion: 1. Christianity☐ 2. Islam ☐ 3.Traditional religion ☐ 4. Others specify)……
7. What is your ethnic group?.....
8. How many children does your mother have?.....
9. What is your position among the children born by your mother?.....
10. How many children have you? …….
11. At what age did you give birth to your first child?.....

SECTION B (Knowledge and Awareness)

12. Have you heard of breast cancer? 1. Yes ☐ 2. No ☐
13. What causes breast cancer? Please list.

……
……
……

14. Please list the symptoms of breast cancer that you know.

……
……
……

15. Do you know of any breast cancer screening method? 1. Yes ☐ 2. No ☐
15b.If yes, please list

……
……

16. Are you worried about breast cancer? 1. Yes ☐ 2. No ☐ If no, go to question 16c
16b.If yes, what are your worries?

……
……

16c. If no, why are you not worried?

……
……

17. Is breast cancer a preventable disease? 1. Yes ☐ 2. No ☐ *IfNo, go to Q19*
18. What can be done to prevent breast cancer?

……
……

19. Do you have a personal history of breast cancer? 1. Yes ☐ 2. No ☐
20. Have you heard about breast self-examination (BSE)? 1. Yes ☐ 2. No ☐
20b. If yes, tick major source of information (a) Peers ☐ (b) Mass media ☐ (c) Literature ☐ (d) Physicians ☐ (e) Others (specify)……. (Tick only one answer)

21. Which other source do you consult for more information? (a)Peers ☐ (b) Mass media ☐ (c) Literature ☐ (d) Physicians ☐ (e) Others (specify)…….(Tick as many that apply)

22. What is Breast Self Examination?

……..
……

23. When should BSE be performed (a) once weekly ☐ (b) once daily ☐ (c) 2-3 days after menstruation ☐ (d) during menstruation
24. What are the benefits of BSE? Please list as many as you know.

……..

……..

25. What are the disadvantages of BSE? Please list as many as you know.

……

……

……

26. What abnormalities can be detected during BSE? Please list.

……...

……

……

27. BSE can be performed while (a) walking ☐ (b) sitting ☐ (c) bathing ☐ (d) standing ☐

28. If I perform BSE regularly, I will decrease my chances of dying from breast cancer.
1. True ☐ 2. False ☐

SECTION C (Perceived Severity and Susceptibility)

29. Is breast cancer a serious disease? 1. Yes ☐ 2. No ☐
Give reasons for your answer .....
.....

30. Are you at risk of having breast cancer? 1. Yes ☐ 2. No ☐
Give reasons for your answer: .....
.....

31. How would you rate your chances of having breast cancer? 1. High ☐ 2. Very high ☐
3.Moderate ☐ 4.Low ☐ 5. Very low ☐

32. If a woman's mother or sister has had breast cancer, is she at risk of having breast cancer?
1. Yes ☐ 2. No ☐

33. Has any of your blood relative ever had breast cancer? 1. Yes ☐ 2.No ☐

33b. If yes, please indicate what the person's relationship is to you (whether sister, mother, aunty etc)…….

34. At what age did you start menstruation?.....

35. Do you drink alcohol? 1. Yes ☐ 2. No ☐

SECTION D (Practice)

36. Have you ever performed BSE? 1. Yes ☐ 2. No ☐ If yes, by who?

…….

37. Do you currently perform BSE? 1. Yes ☐ 2. No ☐ *If No, go to Q 43*

37b. If yes, how often do you perform BSE? (a) Yearly ☐ (b) Monthly ☐
(c) Weekly ☐ (d) daily ☐

38. Please list the steps that you usually take when performing BSE.

……..

……

……

39. Where do you normally carry out BSE? (a) In bed ☐ (b) Bathroom ☐ (c) Anywhere else ☐ (d) others (Specify)……..

40. Which posture do you use when doing BSE? (a) Standing ☐ (b) Sitting ☐ (c) Lying ☐ (d) I don't practice BSE at all ☐

41. At what age did you start practising BSE? ……

42. What initiated your practice of BSE? ……

……

43. I do not practice BSE because of (a) lack of time ☐ (b) I do not know how to perform it ☐ (c) I am scared of discovering a lump ☐ (d) I cannot have breast cancer ☐ (e) I find it embarrassing ☐ f. others please specify

44. Do you intend to perform BSE in the future? 1. Yes ☐ 2. No ☐

44b. If yes, why do you want to perform BSE?

44c. If yes, when do you intend to start?.....

44d. If no, why do you not want to practise BSE in the future?

.....

44e. What things will make you perform BSE in the future?

.....

.....

45. How confident are you that you can perform BSE? a. very confident b. confident c. fairly confident d. Not confident

45a. Give reasons for your answers.

APPENDIX IIB

Questionnaire- Yoruba Version

AWON OHUN TO NSE ATONA SISE AYEWO OMU ARA ENI NI ARIN AWON ODOMOBINRIN NI IJOBA IBILE ARIWA IWO-ORUN NI IPINLE OYO.

Oruko mi ni ..... Mo wa lati eka eko ilera ati idagbasoke ni ile-eko giga ti Ilu Ibadan. Mo nse iwadi lori awon ohun ti o ni lati se pelu imo ati ise yiyearenilomuwo ni ijoba ibile ariwa iwo-orun.

Mo fe ki o mo wipe gbogbo esi ti e ba fun mi ni o da. Kikopa ninu eto iwadi yi ki nse pelu ipa. Ohun ti enikeni le fi da o mo ati iha ti o ko si ibeere je ohun asiri ati pe a ko nilo oruko re lati dahun awon ibeere naa. Mo gba yin laaye lati beere ibeere ni owo mi bi iforojomitoro oro naa se n tesiwaju. Nje o fe kopa? Beeni/Beeko.

SECTION A (AWON OHUN IDANIMO OLUDASI)

1. Ojo ori .....
2. Ise wo ni o nse? .....
3. Elo ni owo osu re? .....
4. Kini olori iwe ti o ka? 1. Alakobere 2. Girama 3. Ile eko giga 4. Nko lo si ile iwe rara
5. Ipo iloko wo ni o wa?1.Nko wole oko ri 2. Mo n ba afesona mi gbe 3.Mo wa ni ile oko 4. A ti ko ara wa sile 5. A ti ja iwe fun ara wa 6. Oko mi ti ku
6. Esin 1. Kristeni 2. Musulumi 3. Elesin ibile 4. Omiran (daruko).....
7. Eya wo ni tire? .....
8. Omo melo ni iya re bi?.....
9. Ipo wo ni wa laarin awon omo ti iya re bi?.....
10. Omo melo ni o ni?.....
11. Omo odun melo ni o nigba ti o bi akobi re?

SECTION B (IMO)

12. Nje o ti gbo nipa jejere oyan? 1. Beeni 2. Beeko

13. Ki ni o nfa jejere oyan?

14. Ki ni apere pe eniyan ni jejere oyan?

15. Nje o mo nipa bi a ti se ye araeni wo lati mo boya o ni jejere oyan?

Bi o ba je beeni, jowo ko won sile

16. Nje okan re ma n damu nipa jejere oyan

16 a. Bi o ba je beeni, ki n lo fa idamu?

17. Nje jejere oyan je aisan ti a le dena? 1. Beeni 2. Beeko Bi esi re ba je beeko, lo si ibeere okandilogun

18. Kini a le se lati dena jejere oyan?

.....

.....

19. Nje o ti ni jejere oyan nigba kan ri? 1.Beeni 2. Beeko Bi o ba je beeko lo si Q16c

20. Nje o ti gbo nipa yiyearaenilomuwo? 1. Beeni 2. Beeko

20b. Bi o ba je beeni, se ami si olori ona ti o fi mo 1.Awon egbe re 2. 3. Litireso 4. Dokita 5. Omiran (daruko)

21. Awon ona miran wo ni o tun ma n fi wadi nipa yiyeara enilomuwo?

22. Kini yiyearaenilomuwo?

23. Ni igba wo ni o ye ki a ma ye ara eni lomu wo? 1. Eekan lose 2. Ekan lojumo 3. Ojo meji tabi meta leyin nkan osu 4. Nigba ti a ban se nkan osu.

24. Anfani wo ni o wa ninu ki a ma ye ara eni lomu wo?

25. Aleebu wo ni o wa ninu ki a ma ye ara eni lomu wo?

26. Awon ohun abami wo ni a le ri nigba ti a ba nye ara eni lomu wo ayewo omu wa?

27. A le yearaenilomuwo nigba ti 1. A ba n rin 2. a ba n joko 3. a ba n we 4. a ba n duro

28. Bi mo ba n yearaminiomu wo, aye pe jejere oyan yio pa mi yoo dinku

1. Otito ni 2. Iro ni

SECTION C (ERO SI KIKO ARUN JEJERE OYAN)

29. Nje jejere oyan je arun ti o le?

So idi fun esi re?

.....

.....

.....

30. Nje ewu pe o le ko arun jejere oyan wa?

31. Bawo ni aye pe o le ni jejere oyan se po si? 1. O po pupo 2. O po 3. O mo niwonba 4. Ko po 5 Ko po rara

32. Bi iya tabi egbon omobinrin kan ba ti ni jejere oyan, nje oun naa lewu ati ni jejere oyan?

33. Nje ikankan ninu awon molebi re ti ni jejere oyan? 1. Beeni 2. Beeko

33b Bi o ba je beeni, so bi eni naa se je si o (Boya egbon re obinrin, aburo tabi egbon iya tabi baba re, iya re)

34. EOmo odun melo ni o nigba ti o bere nkan osu re?

35. Nje o ma nmu oti? 1. Beeni 2. Beeko

SECTION D (YIYE ARA ENI LOMU WO)

36. Nje o ye ara re lomu wo ri? 1. Beeni 2. Beeko

37. Nje o ma n ye ara re lomu wo ?1. Beeni 2. Beeko

37b. Bi o je beeni, bawo lo se nse si? 1. Odoodun 2. Ososu 3.Osose 4. Ojojumo

38. Jowo so bi o se n gba se ayewo omu re

.....

.....

39. Nibo lo ti ma nsaba ye ara re lomu wo? 1. Lori ibusun 2. Ni yara 3.

40. Bawo ni o se nse ye ara re lomu wo? 1. Niduro 2. Nijoko 3.Ni ori idubule 4. Nko kin se ayewo oyan mi rara

41. Omo odun melo ni o nigba ti o bere sin nye ara re lomu wo?

42. ki ni ohun ti o je ki o bere si ma ye ara re lomu wo?

….....

……

43. Nko ki nye ara mi lomu wo nitori 1. Nko ni aye 2.Nko nimo nipa bi won ti nse 3. Eru nba mi pe mo le ri koko 4. Oju ma nti mi 5. Awon idi omiran (daruko)

44. Nje o ye ara re lomu wo ni ojo iwaju? 1. Beeni 2. Beeko

44b. Bi o ba je beeni, kini idi ti o fi se?

44c. Bi o ba je beeni, igba wo ni o ma bere?

44d. Bi o ba je beeko, kini idi ti o fi feye ara re lomu wo?

.....

44e. Awon ohun wo ni yoo je koo ye ara re lomu ni ojo iwaju?

.....

.....

45. Bawo lo se da o loju si pe o le ye ara re lomu wo to? 1. O da mi loju daradara 2. O da mi loju 3. O da mi loju niwonba 4. Ko da mi loju

45b. So idi fun esi re.

APPENDIX III

CONSENT FORM

My name is ----------. I am a student of the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan. I am presently carrying out a research on factors influencing knowledge and practice of breast self examination among young women in Ibadan North West LGA, Oyo State. Findings from this research will add to the body of existing knowledge on breast self examination.

I wish to inform you that there are no right or wrong answers to the questions I will ask you. Please, be informed that participation is voluntary. Your identity, responses and opinions will be kept confidential and no name is required in filling the questionnaire. Please try as much as possible to give honest responses to the questions I will ask you. You are free to ask questions as the interview progresses.

CONSENT: Having understood the purpose of this study, I am now ready to participate in it.

_____ _____

Signature of Participant Signature of Interviewer