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FACTORS INFLUENCING BREAST CANCER SCREENING AMONG FEMALE CLINICIANS AT THE GA WEST AND GA SOUTH MUNICIPAL HOSPITALS IN ACCRA

BY

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DECLARATION

I hereby declare that excluding precise references, which I have duly acknowledged, this dissertation is my own work towards my MPH degree.

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DR PRISCILLIA NORTEY DATE

(ACADEMIC SUPERVISOR)

DEDICATION

This work is dedicated to my mother, Mrs Haleesa Ghansah, who has always been my strongest support system.

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ABSTRACT

Background: Breast cancer is the most commonly diagnosed cancer among women worldwide. Early detection has an important role on prevention of breast cancer. Early detection is achieved through breast cancer screening.

Objective: To assess the knowledge of breast cancer and breast cancer screening practices, and evaluate the health beliefs of the female clinicians in the Ga West and Ga South municipal hospitals.

Method: This is a cross sectional study in two municipal hospitals in the Accra metropolitan area. The study participants comprise 283 female clinicians. Data was collected with the use of a structured questionnaire between May and June 2019. The questionnaire comprises demographic data, knowledge about risk factors, signs and symptoms, breast cancer screening practices, and assessment of the health beliefs of the participants using the health belief model.

Results: The median age of the participants was 27± 7 years. About 41% of the participants had poor knowledge about risk factors. Approximately 15% had poor knowledge about the signs and symptoms of breast cancer. 95.4% of participant knew about Breast Self Examination (BSE), 68.9% knew about Clinical Breast Examination (CBE), and 54.1% knew about mammogram. The proportions that practiced BSE, CBE and Mammogram screening were 77.4%, 21.6% and 1.1% respectively. Occupation ($\chi2=17$,$p=0.001$) was significantly associated with BSE practice. Marital status ($\chi2=8.9$,$p=0.030$) and Income level ($\chi2=7.1$,$p=0.028$) were associated with CBE practice. Income level ($\chi2=6.6$,$p=0.036$) was significantly associated with mammogram practice.

Concerning the health beliefs of the participants, about 54% have low self-efficacy, 45% have low perceived benefits, 49% have low perceived barriers, and 55% have low perceived susceptibility. Perceived benefits (($\chi2=12.3$,$p=0.000$) and perceived barriers (($\chi2=17.7$,$p=0.000$) were associated with BSE. There was no association between the practice of Clinical breast exam and Mammogram and the health belief constructs.

Conclusion: The results suggest the need for continuing professional studies for all clinicians to enhance the knowledge and health beliefs of the clinicians regarding Breast cancer screening.

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LIST OF ABBREVIATIONS

ACS	-	American Cancer Society
BC	-	Breast Cancer
BMI	-	Body Mass Index
BSE	-	Breast Self Examination
BRCA	-	BReast CAncer
CBE	-	Clinical Breast Examination
GHS-ERC	-	Ghana Health Service Ethical Review Committee
GLOBOCAN	-	Global Cancer Incidence, Mortality and Prevalence
HBM	-	Health Belief Model
HRT	-	Hormone Replacement Therapy
KATH	-	Komfo Anokye Teaching Hospital
KBTH	-	Korle Bu Teaching Hospital
OPD	-	Outpatient Department
UK	-	United Kingdom
USA	-	United States of America

DEFINITIONS

Breast Self Examination: This refers to the periodic self-examination of the breasts by an individual in order to detect small lumps or masses.

Clinical Breast Examination: This refers to physical examination of the breast by a doctor or other health practitioner to detect small lumps or masses.

Clinician: A healthcare professional that works as a primary care giver of a patient in a health facility or the patient's home.

Mammography: A radiological examination of the breasts used to detect breast cancer at an early stage when the breast lump may not be felt on physical examination.

Screening: The systematic use of a test or examination to identify individuals at risk of a disease before the onset of clinical stage of the disease.

CHAPTER ONE

INTRODUCTION

1.1 Background

Breast cancer is a type of cancer that results from the abnormal rapid growth of the cells of the breast. Breast cancer has remained the leading cause of cancer-related mortality in women globally (Ginsburg et al., 2017). The current estimated lifetime risk of breast cancer is one in eight women (Bray et al., 2004).

The incidence of breast cancer has been increasing steadily in both developed and developing countries (Azubuike et al., 2018). The International Agency for Research on cancer reported that globally, breast cancer accounted for almost 2.1 million of all new cancer cases, which represented 11.6%. Out of the 9.5 million cancer-related mortalities in 2018, 6.6% was attributed to breast cancer (Bray et al., 2018).

In Ghana breast cancer accounts for 16% of all cancers (Clegg-lamptey & Hodasi, 2010). It is reported that about 60% of women in Ghana report to health facilities with advanced stages of the disease at which time treatment options are limited. This results in low survival rates (Clegg-lamptey & Hodasi, 2010).

In developed countries, diagnosis of the disease occurs at an early stage where effective treatment can be given to improve the chances of survival of the woman. This is possible through effective and comprehensive national screening programmes (El Saghir & Charara, 2014). There is strong evidence that early detection of breast cancer through breast cancer screening significantly reduces mortality (Dey, 2014; Jatoi, 2015). Studies done in the United Kingdom revealed that of the 21% reduction of Breast cancer

mortality, almost a third was directly attributed to national level breast screening programmes implemented in the 1988 (Johns et al., 2017).

In developing countries however, there is a lack of national level breast cancer screening programmes. In Ghana, several breast cancer awareness programmes have been carried out nationwide, with the month of October set aside as the breast cancer awareness month. In spite of the increase in awareness programmes, the uptake of breast cancer screening practices continue to be low nationwide (Opoku et al., 2012) Socio-cultural factors have been found to contribute to the poor health seeking behaviors towards breast cancer among women in Ghana (Asobayire & Barley, 2015).

Various studies in Africa show that the knowledge of breast cancer among women is low, and this has an impact on the heath seeking behavior of the women(Akhigbe & Omuemu, 2009; Oladimeji et al., 2015; Ramathuba et al., 2015). This shows that there is still a wide deficit with regards to the knowledge of women about the disease despite the institution of breast cancer awareness programmes. Breast cancer remains a public health issue.

The uptake of breast screening practices is dependent on the health beliefs of women (Yılmaz & Durmuş, 2016). Clinicians play an important role in influencing the health belief of their clients (Chigbu, Onyebuchi, Onyeka, Odugu, & Dim, 2017). Clinicians are perceived to be knowledgeable about diverse issues related to preventive health behaviours. They encounter people from all walks of life, and are in a unique position of educating women about breast cancer screening practices. It is necessary that the knowledge of these clinicians about breast cancer, their health beliefs and their practice of breast cancer screening be assessed to help improve the promotion of breast cancer education and screening among women in Ghana.

1.2 Problem Statement

There has been a rising trend in the incidence of Breast cancer cases globally with steeper rise in developing countries (Azubuike et al., 2018).

In a study done at Komfo Anokye teaching hospital, about 10% of the registered nurses in the study had undergone mammography screening (Ohene-Yeboah et al., 2013). In another study conducted in Accra and Sunyani, 2% of the women had undergone mammography screening, 12% had undergone clinical breast examination (CBE), and 32% practice breast self examination (BSE). This study also showed that 13.9% and 12.4% of the participants got the information from nurses/midwives and doctors respectively, with the media reaching 65.4% of the participants (Opoku et al., 2012).

In developed countries, breast cancer screening is a public health policy with health workers spearheading the campaign. Finland was the first country to implement nationwide mammography screening as a public health policy with the highest screening rate among women in the world at 88% (Hakamal et al., 1991).

Clinicians are expected to play a vital role in health education and promotion. However, in Ghana, the uptake of breast cancer screening among the clinicians is low. Their impact on improving the awareness of breast cancer and breast cancer screening practices in Ghana is not adequate. The media, which is the major source of education on breast cancer, gives more room to traditional healers, herbalists and spiritualists to educate the public, giving the women poor alternate health care choice (Opoku et al., 2012). This results in the propagation of misconceptions with regards to BC and poor uptake of breast cancer screening. This reduces the efforts to curb the problem of delayed diagnosis and treatment, and reduce the survival rate of breast cancer in Ghana.

This study therefore seeks to assess the knowledge of breast cancer risk factors, signs and symptoms, breast cancer screening practices and health beliefs among female clinicians in two largest municipal hospitals in the Greater Accra region of Ghana.

1.3 Justification

Breast cancer is the leading cause of cancer deaths in women and deaths resulting from breast cancer are projected to increase across the globe (Bray et al., 2018). The most effective way to reduce mortality from breast cancer is through the comprehensive breast cancer screening methods (Jatoi, 2015) and clinicians are expected to influence the promotion of breast cancer screening, thus, necessitating this study.

1.4 Research Questions

1. Are female clinicians well informed about the signs, symptoms, risk factors of breast cancer and breast cancer screening practices?
2. How often do female clinicians partake in breast cancer screening exercises?
3. What are the health beliefs of female clinicians towards breast cancer screening?

1.5 General Objective

To assess the knowledge of breast cancer, breast cancer screening practices and health beliefs among female clinicians in two municipal hospitals in Accra.

1.6 Specific Objective

1. To assess the knowledge of the signs, symptoms, risk factors of breast cancer and breast cancer screening practices among female clinicians
2. To determine breast cancer screening practices among female clinicians
3. To evaluate the health beliefs of female clinicians with regards to breast cancer screening

1.7 Conceptual Framework

The conceptual framework (Figure 1.1) was adapted and modified from the Health Belief Model (Stretcher & Rosenstock, 1997). The Health Belief Model is a psychosocial model, which is widely used in health education and promotion. The idea of the health belief model is that an individual's health behavior is determined by his/her beliefs or perceptions about the disease and available plans to reduce the incidence of the disease (Stretcher & Rosenstock, 1997).

The model focuses on six main constructs; perceived susceptibility, perceived seriousness, perceived barriers, perceived benefits, self-efficacy and cues to action. These constructs together determine a person's likelihood of partaking in screening practices.

These health beliefs can be assessed using some well-constructed tools (Champion, Skinner, & Menon, 2005a). In addition to the health beliefs, the income of an individual also influences the choices the person make and determines if an individual will be able to afford a screening option such as mammography.

Age also has an influence on a person's attitude to screening. Young people usually believe they are not at risk of developing cancer and as such may opt out of screening.

Married people are more likely to go for screening because of emotional and financial support from their spouses.

On the other hand, unmarried women feel men may reject them if they find problems with their breasts and as such may opt out of screening. Women who are highly religious may not partake in screening because they may believe that cancer is a disease from the devil or a form of spiritual punishment when one sins and as such may not take part in screening practices

Consequently, for a woman to take part in screening practices, she must first recognize that she stands a risk and also recognize the threat. She must also be aware of benefits that may arise if she takes part in the screening process.

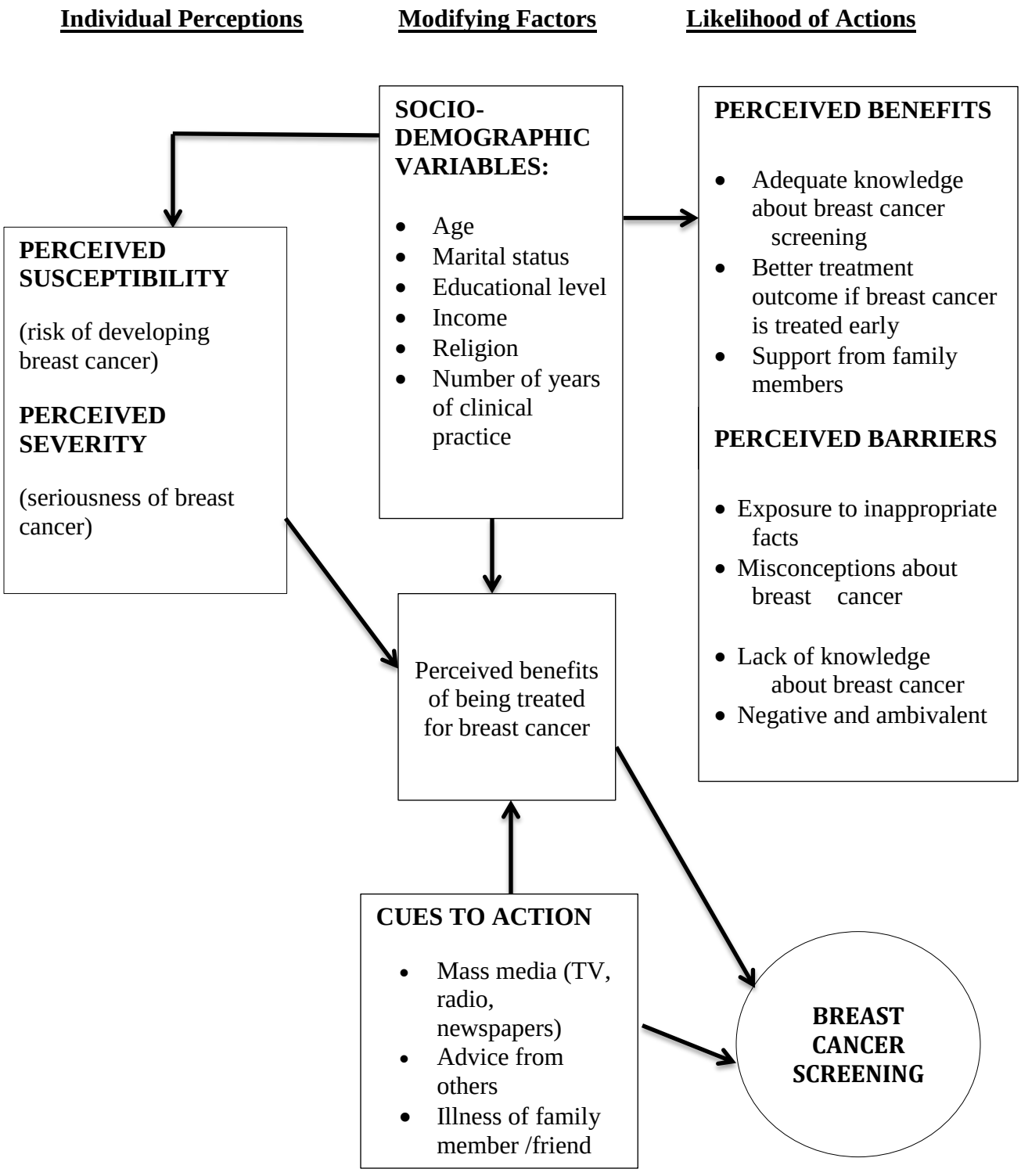

Figure 1.1: Conceptual framework showing the relationship between variables.
Adapted and modified from the Health Belief Model Construct (Stretcher & Rosenstock, 1997)

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Cancer is a group of diseases in which the cells in the body grow at a rapid uncontrolled rate, which can invade nearby tissues and spread to other parts of the body. When these cells form a solid mass, it is referred to as tumour. These diseases are named based on the part of the body where the tumour starts. Breast cancer is a tumour that originates from the cells of the breast.

Breast cancer has remained a public health issue over the last decades. Breast cancer is the commonest type of cancer in women in both the developed and the developing world (Todua et al., 2015). There has been a rising burden of breast cancer particularly in the developing world, notably in Africa. Breast cancer contributes to more than one million of the estimated fourteen million cancers diagnosed annually and is responsible for about 375,000 deaths in the year 2012 (Ferlay et al., 2013). The incidence rates of breast cancer vary worldwide, with lower rates reported in Africa. The survival rates are also reported to be lower in Africa (Brinton et al., 2014). This shows that there is an urgent need to implement effective strategies to ensure that the burden of the disease is reduced. This chapter discusses the relevant literature concerned in this study.

2.2 Incidence of Breast Cancer

The incidence of breast cancer has been increasing globally and is projected to continue to increase over the next decade (Benson & Jatoi, 2012). The American Cancer society's most recent statistic for breast cancer in the USA for 2017 projected that about 252,710 new cases of invasive breast cancer cases and 63, 410 new cases on Carcinoma-in-situ

will be diagnosed in women. It is also projected that about 40,610 women will die from breast cancer. The incidence in the USA is also reported to be higher among black women compared to their white counterparts. The lifetime risk of being diagnosed with breast cancer in the USA is reported to be 12.4% or a 1 in 8 lifetime risk. About four decades ago in the 1970s, the lifetime risk in the USA was reported to be 1 in 11 (American Cancer Society. Breast Cancer Facts & Figures 2017-2018. Atlanta: American Cancer Society & Global, n.d.).

In the United Kingdom, the Cancer research UK found that breast cancer accounts for 15% of all new cases. The estimated number of new breast cancer cases in the UK is 54,900, with 11,400 being the estimated number of breast cancer deaths. It is reported that Australia has the highest incidence of breast cancer 94.2 per 100,000, while South central Asian countries have the lowest incidence with 25.9 per 100,000(Bray et al., 2018).

According to the Breast cancer association of Nigeria, the incidence of breast cancer has doubled from 15.3 per 100,000 women in 1976 to 33.6 per 100,000 in 2000. These figures however may be underestimations due to the issue of data unavailability in most developing countries. A more recent study carried out in Ibadan and Abuja from 2009 to 2010 reported an incidence rate of 52 per 100,000 in Ibadan and 64.6 per 100,000 in Abuja (Jedy-Agba et al., 2012).

The pattern of breast cancer is not different in Ghana. Data from Korle Bu teaching hospital over the last five decades shows an increase in the incidence of breast cancer from 7.5% in the 1970s (Edmund et al., 2013) to 12.8% in 1996. The most recent study

done in the Korle Bu Teaching hospital in 2009 reported the incidence of 16% (Clegg-lamptey & Hodasi, 2010).

These statistics shows that breast cancer incidence has been on the rise globally. This calls for intensification of screening methods and effective treatment strategies to help curb the global burden of this disease.

2.3 Risk Factors Related To Breast Cancer

Various risk factors have been linked to breast cancer. These include both modifiable and non-modifiable factors. Assessment of these risk factors is vital to understand the disease and can help to control the occurrence of the disease. The female sex is the main risk factor for developing breast cancer. Less than 1% of breast cancer cases occur in men (Giordano, 2005).

Other risk factors are discussed below:

Age

The risk of developing breast cancer increases with age, although a significant number of cases have been detected in younger females. Breast cancer is rare before 20 years. The incidence begins to rise from 30 years and declines after 80 years. The American cancer society reports the peak age to be between 50-69 years where about 56% of in-situ cases and 50% of invasive cases occur (Champion, Skinner, & Menon, 2005b).

Family History

Women with first-degree relatives who have had breast cancer have a greater risk of developing breast cancer compared to those with no family history of breast cancer. First-degree relatives refer to one's grandmother, mother, aunt, or sister. There is a 50% incidence among females whose mothers or sisters have had bilateral breast cancer. Hereditary breast cancer however accounts for 5% of all breast cancer cases. Genetic

mutations have been detected to be responsible for hereditary breast cancer. The commonest genes implicated are the BRCA 1 and BRCA 2 genes. Breast cancer among women with this genetic mutation is characterized by early age at onset of disease and higher incidence of disease affecting both breasts. Women with positive family history are therefore advised to start screening for breast cancer at an early age, usually during their teenage years. In the developed countries, investigations are carried out on these high-risk groups to detect these genetic mutations. This helps to institute measures such as more frequent breast screening and prophylactic mastectomy. Prophylactic mastectomy has been shown to reduce the risk of breast cancer by 90-95% in women with BRCA 1 and BRCA 2 genetic mutations(Hartmann et al., 2001).

Endocrine Factors

An increased risk of breast cancer has been linked to various endocrine-related factors. These include early age at menarche, late age at menopause, late age at first pregnancy, duration of breastfeeding, and the use of hormone replacement drugs containing estrogen(Kelsey et al., 1993) Women who have their menarche before 12 years and those who reach menopause after 55 years have been found to have a 1.5 increased risk of getting breast cancer.

Women who have their first child before 19 years are reported to have a reduced risk (0.5) of getting breast cancer compared to those who have their first child after 30 years. Women who do not have children are also at a greater risk of getting the disease. Breastfeeding for two years has also been found to be protective (Adebamowo & Adekunle, 1999)

These factors are thought to be as a result of exposure to estrogen. This may explain the finding that women on hormone replacement therapy for more than 5 years have been

found to have a slightly increased risk of breast cancer. The risk however disappears 5 years after cessation of HRT.

Lifestyle Factors

Certain lifestyle factors have been implicated in the risk factors for breast cancer. These include high fat diet, alcohol intake, and lack of exercise resulting in weight gain.

Alcohol intake has been found to increase the risk of breast cancer, although the mechanism remains unclear. Women who take three to five drinks a day that is approximately 30 to 40grams per day have about one and a half times increased risk of developing breast cancer. This risk increases by about 7% for every 10grams extra alcohol intake(Boyle & Boffetta, 2009).

Increased BMI and obesity have also been linked to an increased risk of breast cancer(Owiredu et al., 2009) women are therefore encouraged to exercise more frequently and maintain a normal BMI.

High fat diet has also been shown to pose an increased risk of breast cancer. In the past, breast cancer incidence was higher in countries with high fat diet such as the USA compared with countries with low fat diet such as Japan. However with the westernization of diet, the incidence of breast cancer among countries who had low fat diet is increasing (Carroll et al., 1968).

2.4 Signs and Symptoms of Breast Cancer

The signs and symptoms of breast cancer differ from person to person, although they are common signs and symptoms that frequently occur in most patients with breast cancer. It is important for a woman to know how her breast looks and feels in their normal state, so as to be able to detect any change that occurs in their breast. This is the reason why breast self-examination should be promoted at a very early age so that girls get to know the

anatomy of their breast, and also be able to tell of any abnormal change that occurs in their breast.

The commonest symptom of breast cancer is a lump, which is usually painless. The upper outer quadrant of the breast is the commonest site for the lumps and the right breast is more commonly affected than the left breast. Pain in the breast can also be a symptom of breast cancer. In a study carried out at the Korle-bu Teaching Hospital in Accra, Ghana in 2007 among 447 patients with breast pain; 72% (322) presented with breast pain as the only symptom and 30% (125) had breast pain together with other symptoms such as breast lump and nipple discharge. Breast cancer was found in 1.24% (4) of those who presented with breast pain as the only symptom and 16% (20) in those who had other symptoms in addition to pain (Clegg-lamptey & Hodasi, 2010). Other symptoms of breast cancer include bloodstained nipple discharge, nipple abnormalities such as deviation, retraction, or destruction. The nipple-areolar complex may be distorted and looks like the skin of an orange; this is referred to as 'peau d'orange'. For metastatic breast cancer, the patient may present with other signs and symptoms based on the location of the spread. These include swelling in the armpit called axillary lymphadenopathy, cough and difficulty in breathing due to lung involvement, and ascites and hepatomegaly due to liver involvement. If the brain is involved, patient may experience headaches, altered consciousness and seizures. There may also be pathological fractures from bone involvement, and paraplegia or paralysis from spine involvement.

When a patient presents with any of these signs and symptoms, the patient must be thoroughly managed by the attending medic. The triple therapy of breast assessment has

been globally accepted in the management of the patient. This includes Clinical diagnosis, Imaging, and Cytology or pathological investigations.

2.5 Knowledge about Breast Cancer Signs and Symptoms

A vast number of studies have been carried out globally to assess the level of knowledge about breast cancer among women although these studies are limited in Ghana.

A beauty salon based survey carried out in California in the United States of America among African-American women, about a third of the women reported to being well-informed about breast cancer and its symptoms. The level of knowledge was seen to be associated with breast cancer screening guidelines, as about a third of the one thousand and fifty five women reported to practice monthly breast self-examination (Sadler et al., 2007).

In a qualitative study carried out in Delhi, India between 2013 and 2014, it revealed a huge gap in knowledge regarding breast cancer. Majority of the women were ignorant or had been misinformed about breast cancer. Only a few women were able to describe the symptoms of breast cancer. Majority of women also stated that wearing tight fitting clothes and undergarment is a risk factor of breast cancer(Dey et al., 2016).

In Makwarani community, a rural community in South Africa, a study carried out reported a significant deficit in the knowledge level of breast cancer among the women in the community. Only about a third of the women had heard of breast cancer. Knowledge about the risk factors of breast cancer was equally very low with about one in five women knowing about some of the risk factors (Ramathuba et al., 2015).

In Ibadan Nigeria, a study conducted among market women reported that most of the women (about two-thirds) had fair knowledge about breast cancer and its screening

methods. Approximately one in five women however were of the view that breast cancer is a form of spiritual attack (Oladimeji et al., 2015).

In Ghana, a study done among female soldiers of the Ghana Armed forces in Accra found that although most of the participants had heard about breast cancer, only about 10% had good knowledge about the risk factors, and about 30% had good knowledge about the symptoms and signs of breast cancer(Kwawu, 2015). These studies gives credence to the fact that there is the need for more awareness campaigns to improve the level of knowledge about the risk factors, signs and symptoms of breast cancer especially in sub-Saharan Africa where the incidence is on the rise.

2.6 Breast Cancer Screening Modalities

Breast cancer screening is the cornerstone to early detection of breast cancer. There are four main screening modalities that can be used to help detect breast cancer. These include Breast self-examination, Clinical breast examination (by a doctor or a nurse), Ultrasound of the breast and mammography.

Breast self examination is an ideal screening method in resource-constrained settings in most Africa countries. This method does not attract any cost. It is culturally acceptable, religiously friendly and non-invasive. This method has been reported to be the least sensitive method of detecting breast cancer. The Kotka pilot project in Finland in the 1990s however demonstrated that monthly BSE can help reduce breast cancer incidence and mortality (Hakama et al., 1995)

A study done in Nnewi, Nigeria among health workers showed that although the level of knowledge of breast cancer screening practices was high (more than 90%), this did not translate into the practice of breast cancer screening, as only a third of these health

workers practice any form of breast cancer screening (Madubogwu et al., 2017). A similar study carried out among market women in Ibadan, Nigeria however reported that more than three-quarters of the women had heard about breast self examination, less than a third of the women practice it (Oladimeji et al., 2015).

In Cameroon, a study done among university students showed that nearly three-quarter of the students had head of breast self examination, 9% of these students knew how to perform BSE and only 3% of them practiced BSE regularly(Nde et al, 2015).

Clinical breast examination (CBE) performed at least every three years by a qualified health care provider is recommended for all women from age 20 (American Cancer Society, 2009). It is also recommended that from 40 years, women should have CBE performed every year by a health care provider. The ACS also recommends annual screening mammograms starting at age 40. Women younger than 40 years, who have other significant risk factors for breast cancer such as a positive family history or a personal history, may also be considered for mammography.

In the USA, mammography screening was introduced as a public health initiative in the 1980s and this has significantly enhanced the survival of women, as breast cancer cases have been detected at very early stages during the occult phase where clinical symptoms have not yet developed (Jatoi, 2015). In Nigeria, a study among female workers showed that although the awareness of mammography as breast screening is high, only 3 out of the 182 respondents had ever had mammography(Madubogwu et al., 2017). This may be due to the fact that mammography is expensive. In most developing countries, mammographic screening may not be readily feasible due to the cost involved. In Ghana, there is no population-based mammography screening programme. A more realistic

approach to early detection of breast cancer is Ghana and most developing countries may be the use of breast self-examination and clinical breast examination.

2.7 Health Belief Model

The Health Belief Model is a psychosocial model frequently used in health education and health promotion (Seer, 2008). It was developed in the 1950's to explain why medical screening programs offered by the US government were not successful. The concept of the Health Belief Model is that people's behaviors are influenced by their beliefs and perceptions. The positive aspect is that, beliefs can be changed through well-structured and targeted educational programs. The initial Health belief model consisted of four main parameters. It was later revised by Victoria Champion, after which 2 more constructs were added. The six constructs are discussed below.

2.7.1 Perceived severity

It is a person's belief or perception of how serious or severe the disease is. Most often, perception of seriousness or severity comes from medical information or knowledge. It may however also stem from an individual's belief about the effects the disease will have or the difficulties it will have on his or her life in general. Before a health promoting behavior will develop, a threat must be envisaged. A woman must perceive that breast cancer is serious as well as recognize the fact the she has a risk for developing the disease before she will partake in screening practices (Champion, 1999).

2.7.2 Perceived susceptibility

It is an individual's belief about the possibility of developing a specific disease. The greater a person's perceived susceptibility is, the greater the likelihood that they will

engage in practices to reduce the risk. Thus a woman is more likely to engage in breast cancer screening if she perceives that she is at risk. An increase in perceived susceptibility has been shown to increase screening practices (Holwerda, 2000)

2.7.3 Perceived benefits

It is an individual's belief on how change in her behavior will improve her life compared to what she was doing previously, or how useful the change will be in reducing her chances of developing a disease. A woman is thus more likely to engage in screening practices if she believes it will reduce her likelihood of developing the disease and also avoid death (Champion & Skinner, 2008).

2.7.4 Perceived barriers

It is an individual's assessment of the factors/impediments that inhibit her from assuming a new behavior. It looks at the negative attitudes related to a health behavior. Of all the constructs, perceived barriers are the strongest predictor of determining behavior change. The barriers may include fear of cancer, cost, time, pain and fear of radiation (Champion, 1999).

2.7.5 Self-efficacy

It is an individual's belief in herself to be able to accomplish a task. Most times, people do not try new things unless they believe they can do it. If an individual beliefs that a new behavior is useful, however does not believe she can do it, the likelihood that they will not try the new behavior is high.

2.7.6 Cues to action

These are events, people or situations that cause people to change their behavior. For example illness in a family member, mass media campaign or advice from someone held in high esteem.

2.8 Misconceptions

Despite numerous breast cancer awareness campaigns carried out on breast cancer education, many myths, misconception and misinformation about breast cancer still exist in many communities. These myths, misconceptions and misinformation have been noted to a large extent to be partly responsible for the delay in seeking medical care after most women have discovered symptoms suggestive of breast cancer. In a qualitative study in India, women had the misconception that "married women are prone to get BC"(Dey et al., 2016). Some women in rural Nigeria are also of the view that BC is a spiritual attack(Oladimeji et al., 2015).

In a qualitative study done in Northern Ghana in the Kassena-Nankana district, the women had some misconceptions about breast cancer. They thought that having big breasts puts one at risk of breast cancer. They also thought that women with nipple discharge even among the breastfeeding mothers are at risk of breast cancer. They also had a local name for breast abscess among lactating mothers, and felt that once a woman develops breast abscess during lactation, the woman is at risk of developing breast cancer (Asobayire & Barley, 2015). These misconceptions impact negatively of breast cancer screening uptake of these women.

CHAPTER THREE

METHODS

3.1 Study Design

This study was a cross sectional study conducted in two municipal hospitals between May and June 2019.

3.2 Study Area

The study was conducted at the Ga South Municipal hospital, also known as 'Akawe' and Ga West Municipal hospital, also known as 'Amasaman' hospital in the Greater Accra region of Ghana. These two hospitals are the largest municipal hospitals in the Accra Metropolitan area in the Greater Accra region and have high daily OPD attendance.

3.2.1 Accra Metropolitan Assembly

The Accra Metropolitan Area was established in 1898 and has since its establishment served as the capital of the Greater Accra Region. In addition, it serves as the national capital of Ghana. The Accra metropolitan area is simultaneously a city and metropolitan district .The City of Accra is bordered to the North by Ga West Municipal, the West by Ga South Municipal, the South by the Gulf of Guinea, and the East by La Dadekotopon Municipal. It covers a total land area of 139,674 Km2. The city is entirely urban and has a population of 1,665,086, which represents 42 percent of the region's total population. The Accra Metropolitan Area is the economic hub of the Greater Accra Region and the rest of the country. It hosts a number of manufacturing industries, oil companies, financial institutions, telecommunication, tourism, educational and health institutions. About 70.1 percent of the population aged 15 years and older are economically active

while 29.9 percent are economically inactive (Ghana Statistical Service, 2014)

3.2.2 Ga South Municipal Hospital

This facility is located in the Ga South Municipality. It was carved out from the Ga West district in 2007. It has Weija as its capital. This facility began as a leprosarium in the 1940s. As the population in the municipality increased, other services were added. Currently, it is the only public hospital in the Weija/Gbawe municipality and serves a large catchment area with a population of 510,145. The facility offers 24-hour healthcare services in the areas of internal medicine, paediatrics, obstetrics and gynaecology, surgery, ENT, dental, ophthalmology, and public health services. It is a National Health Insurance accredited facility. It has clinical staff strength of 288 out of which 248 are females. The OPD attendance as at 2018 was 109,336 with an average daily attendance of 300. Females contributed more than 50% of the OPD attendance, a good opportunity for education about breast cancer. (2018 Annual report, Ga South municipal hospital)

3.2.3 Ga West Municipal Hospital

This facility is also called Amasaman Government Hospital. It is located at Amasaman, the municipal capital of the Ga West Municipality. This facility is a government-based facility and serves as the referral center for the nine other government health facilities in the municipality. The municipality has three health sub districts namely Amasaman, Pokuase and Ofankor. It has about 1,800 communities. The hospital has a staff strength of approximately 250, which includes both clinical and non-clinical staff. The OPD attendance of the facility is approximately 280 daily in 2018, which are predominantly

females. It offers 24-hour healthcare services and is a National Health Insurance accredited facility.

3.3 Study Population

The study population included female clinicians in the Ga South and Ga West Municipal hospitals who are duly registered with their governing body (Medical and Dental Council, Nursing and Midwifery council). Female clinicians refer to female medical doctors, physician assistants, general nurses and midwives.

3.4 Inclusion Criteria

1. Female clinicians who are staff of the two municipal hospitals

3.5 Exclusion Criteria

1. Participants with a personal history of breast cancer. This category of participants will be excluded from the study because their condition or treatment processes may have given them added information about the disease.
2. Male clinicians will be excluded.

3.6 Study Variables

3.6.1 Dependent variable

The three dependent variables in this study are breast self examination, clinical breast examination, and mammogram screening practices of female clinicians.

3.6.2 Independent variables

The independent variables in this study are demographic variables (Age, marital status, occupation, income level and work experience), knowledge of breast cancer signs,

symptoms and risk factors, the four Health belief model constructs namely perceived susceptibility, perceived benefits, perceived barriers and self-efficacy).

Table 3.1: Operation definitions for Dependent variable

Variable	**Operational definition**	**Type of variable**	**Source of date**
Breast Self Examination	Breast self-examination is a monthly examination of one's own breast, done at the same time of each month	Binary: Yes or No	Interview
Clinical Breast examination	Physical examination of the breast by a doctor or other health practitioner to detect occult masses	Binary: Yes or No	Interview
Mammography	Radiological examination of a woman's breasts which aids in the detection of breast cancer before it becomes clinically apparent	Binary: Yes or No	Interview

Table 3.2: Operational definitions for demographic variables

Variable	**Operational definition**	**Type of variable**	**Source of Data**
Age	Age of clinician at last birthday	Continuous in years	Interview
Marital status	Clinicians marital status	-Single -Married -Divorced -Widowed	Interview
Occupation	Type of qualification for clinical practice	-Medical Doctor -Physician Assistant Midwife General nurse	Interview
Income level	Income of clinician	-< ¢1000 -¢1001– 2000 - > ¢ 2001	Interview
Experience	Duration of practice	Continuous measured in years	Interview

Table 3.3: Operational definitions for Knowledge of breast cancer

Variable	Operational Definition	Response	Source of data
Knowledge about risk factors	The accuracy of one's knowledge about the risk factors of BC	Agree Don't know Disagree	Interview
Knowledge about signs and symptoms	The accuracy of one's knowledge about the signs and symptoms of BC	Agree Don't know Disagree	Interview
Knowledge about BC screening methods	The accuracy of one's knowledge about the screening methods of BC	Agree Don't know Disagree	Interview
Educating clients on BC screening	The health promotion of BC screening	Yes/No	Interview
Knowledge about BSE procedure	The accuracy of ones knowledge of how BSE is done	Choose correct starting option	Interview

Table 3.4: Operational variables for Health belief model constructs

Variable	**Operational definition**	**Likert scale**	**Source of data**
Perceived susceptibility	An individual's assessment of her chances of getting the disease	Strongly disagree – 1point Disagree – 2 points Don't know – 3 points Agree – 4 points Strongly agree - 5	Interview
Perceived barriers	An individual's opinion as to what will prevent her from adopting a new behavior	Strongly disagree – 1point Disagree – 2 points Don't know – 3 points Agree – 4 points Strongly agree – 5	Interview
Perceived benefits	An individual's opinion of whether the new behavior will be beneficial	Strongly disagree – 1point Disagree – 2 points Don't know – 3 points Agree – 4 points Strongly agree - 5	Interview
Self-efficacy	A persons belief in her ability to do something	Strongly disagree – 1point Disagree – 2 points Don't know – 3 points Agree – 4 points Strongly agree - 5	Interview

Source: Champion et al,1999

3.7 Sampling Size Determination

A study done in Ghana assessed BC screening among only nurses and reported that 10% of them had had mammography screening in the last four years and 21.2% had had CBE in the last six month(Ohene-Yeboah et al., 2013). These two prevalent values were considered in the estimation of sample size.

1. The required sample size for nurses who had had mammographic screening was derived using the Cochran formula

$$n = \frac{z^2 pq}{d^2}$$

Where z = 1.96, the corresponding z score for 95% confidence interval

p = 0.10 which is the proportion of nurses who had had mammography.

q = (1-p) = 0.90 which is the proportion of Ghanaian women who had not undergone mammography.

d = 5% margin of error

Minimum sample size (n) calculated is $\{1.96^2 \times 0.10 \times 0.90\} \div 0.0025 = 138.297$, approximately 138

2. The required sample size for nurses who had had Clinical breast screening was derived using the Cochran formula

$$n = \frac{z^2 pq}{d^2}$$

Where z = 1.96, the corresponding z score for 95% confidence interval

p = 0.212 which is the proportion of nurses who had had clinical breast screening.

q = (1-p) = 0.788 which is the proportion of Ghanaian women who had not undergone clinical breast screening.

d = 5% margin of error

Minimum sample size (n) calculated is $\{1.96^2 \times 0.212 \times 0.788\} \div 0.0025 = 256.705$ approximately 257.

The sample size calculated from the proportion of nurses who had has clinical breast exam is larger than those who had mammogram hence was chosen for the minimum sample size for this study. This gives more reliable results for both methods of screening.

Assuming a non-response rate of 10%, the minimum sample size used for this study 257+26 = 283 participants.

3.8 Sampling Method

Proportionate stratified random sampling was used to determine the number of participants from each facility to be interviewed. The participants were put in strata based on their facility that is Ga West and Ga South. The total number of female clinicians from both facilities was obtained and represented by 'N'. The total number 'N' was 460 female clinicians; 248 from Ga South hospital and 212 from Ga West hospital. The sample size 'n' as calculated was 283. The sampling fraction was calculated from the formula $\frac{n}{N}$ and the fraction obtained was used to derive the number of participants per facility (sample fraction × number of female clinicians per facility). 153 participants were recruited from Ga South and 130 participants recruited from Ga West hospitals

Simple random sampling technique was then used for selection of participants within the facility. A comprehensive list of all female clinicians was obtained from each hospital's administration in alphabetical order using their surnames. A computer software program

was used to randomly select female clinicians from each facility. The interviews were conducted at their workstation after informed consent was obtained.

3.9 Data Collection Method and Tools

Self-administered questionnaires were employed.

The first section of the questionnaire comprises information regarding their socio-demographics. The second section assessed their knowledge about BC risk factors and signs and symptoms. The standardized widely used breast cancer perception and knowledge survey (BCPKS) developed in the 1980s was adapted for this study.

The third section assessed the breast cancer screening practices of the participants.

The last section assessed health beliefs towards breast cancer using the health belief model construct. This part of the questionnaire adopted the Health Belief Model Likert scale (Stretcher & Rosenstock, 1997). Options of the scale are, strongly disagree which is 1 point, disagree 2 points, don't know 3 points, agree 4 points and strongly agree 5 points. The four out of the six Health Belief model constructs used were perceived Self-efficacy, perceived barriers, perceived benefits and perceived susceptibility. For this study, the cues to action and perceived seriousness were not measured. The Self-efficacy scale(Champion et al., 2005a) had nine questions. A participant can score a minimum of 9 points and a maximum of 45 points.

The benefit scale consisted of six questions. The minimum score to be obtained was 6 and maximum score was 30. The barriers scale had 11 questions with a minimum score of 11 and a maximum sore of 55. Perceived susceptibility scale had 3 questions with a minimum of 3points and a maximum of 15 points. Higher scores indicated more perceived benefits, more perceived risk, more perceived barriers and more self-efficacy.

3.10 Training of Field Worker

The research assistant who is a physician assistant was engaged to assist in the administration of the questionnaire. She was trained intensively for one week prior to data collection on proper data collection techniques, as well as on the ethical guidelines.

3.11 Quality Control

Quality control of this study was ensured via:

Pre-test: The questionnaire was pre-tested among female clinicians in Achimota hospital prior to final administration to the participants in the Ga West and Ga South hospitals.

Editing completed questionnaires: Errors and inconsistencies seen in the conducted pre-testing were corrected before the actual study is done.

3.12 Data Processing

At the end of every data collection day, the researcher and research assistant examined questionnaires for completeness.

3.13 Data Analysis

Data collected was analyzed using StataIC 15.0 and Microsoft excel 2016. Descriptive statistics was used to report on the demographic variables using graphs and frequency tables. Statistical tests such as Chi square tests and logistic regression was used to assess associations between the three dependent variables and the independent variables.

Bivariate analysis was used to determine relationship between demographic variables (Marital status, occupation, income level and work experience) and the dependent variables.

Cronbach alpha test was conducted on the four health belief model construct to test for

the internal reliability and consistency of the health belief model used.

Logistic regression was conducted to determine the association between the dependent variables and the Health Belief Model whiles controlling for demographic variables (age, marital status, qualification, income, experience) and knowledge of breast cancer risk factors, signs and symptoms.

Two models were developed for the dependent variables, BSE and CBE.

In model one, uptake of Breast self-examination was used as the dependent variable. In step one of model one, demographic variables and knowledge about risk factors, signs and symptoms were entered as control variables and in step two the health belief constructs were added on.

In model two, uptake of Clinical breast examination was used as the dependent variable. In step one, demographic variables and knowledge about risk factors, signs and symptoms were entered as control variables. In step two, health belief constructs were added on. The model building approach was used to prevent multicollinearity.

A likelihood ratio test was used to compare the two models (nested models) in both Model one and Model two to compare if the step two of the models was significant to the overall model.

3.14 Ethical Consideration

Ethical clearance was obtained from the Ghana Health Service Ethical Review Board Committee (**GHS-ERC 018/04/19**). Letters of introduction were obtained from the School of Public Health, University of Ghana. The letters were submitted to the Managements of the Ga South and Ga West hospitals. Permission was sought from the

management of both facilities before the study commenced.

The purpose of the study was explained to each participant after which they were presented with an informed consent form. A participant was enrolled only after she agrees to the terms specified on the informed consent form.

The confidentiality of the information they provided was assured. The participants were made aware at the start of the data collection of their right to exit the study anytime they felt uncomfortable with how the study or questions involved were proceeding. Interviewing of participants was done at locations where others will not overhear them so that everything said would remain confidential between the researcher and the particular participant.

Participants' information was only visible to the principal investigator and research assistant after the data collection. Data was kept under lock and key once obtained to prevent unauthorized people from getting access to it. The dataset was stripped of all identifying information, stored on a compact disc, and submitted to the School of Public Health's Department of Epidemiology and Disease Control.

CHAPTER FOUR

RESULTS

4.1 Introduction

This study was a cross-sectional study carried out from May to July 2019 among female clinicians in the two Municipal hospitals in the Accra Metropolis. Out of a total of 460 female clinicians who qualified to be part of this study from both hospitals, 283 were randomly selected; 153 from Ga South and 130 from Ga West. Self- administered questionnaire was used with a 100% completion rate achieved in the study. The time to completion of the questionnaire ranged from 10 to 40 minutes with a median time of 25 minutes.

4.2 Demographic characteristics

The age range of the participant ranges between 20 years and 59 years with a median age of 27 ± 7 years. Majority of the participants were general nurses (48%) and midwives (38.9%). Medical doctors comprised 8.5% of the study population, and physician assistants 5.6%. The average work experience of the participants is 3 ± 2 years. More than half of the participants (55.8%) had a monthly income level less than 1000 Ghana cedis. Majority of the participants were single (63.6%) as shown in Table 4.1.

Table 4.1 Demographic characteristics of participants

Variables (Median±IQR)	**Numbers**	**Percent %**
Age in years (27±7)		
Work Experience in years (3±2)		
Occupation		
Midwife	110	38.9
Medical Doctor	24	8.5
General Nurse	133	47
Physician Assistant	16	5.6
Marital Status		
Single	180	63.6
Married	101	35.7
Widowed	2	0.7
Monthly Income (Gh ¢)		
<1000	158	55.8
1001 – 2001	80	28.3
>2001	45	15.9

Source: Field work, July 2019

4.3 Knowledge about risk factors of breast cancer

Eight questions were asked about breast cancer risk factors with a score of 3 for an accurately answered question, 2 for participants who do not know and 1 for participants who wrongly answered the question. A minimum score a participant could get was 8 and a maximum score was 24. A participant who accurately answered at least 6 out of the 8 questions and did not know the remaining two questions scored between 22 and 24 were regarded as having good knowledge about the risk factors. Scores between 20 and 21 i were regarded as having fair knowledge. Scores of less than 20 were regarded as having poor knowledge.

Only about 33% of the participants had good knowledge about the risk factors for breast cancer which represents 95 out of the 283 participants. A higher proportion of the participants (41%) had poor knowledge about the risk factors.(Figure 4.1).

Among the different occupations, a high proportion of medical doctors (95.8%) had good knowledge about risk factors, followed by physician assistants (31.3%) then general nurses (30.1%) and midwives (24.6%).

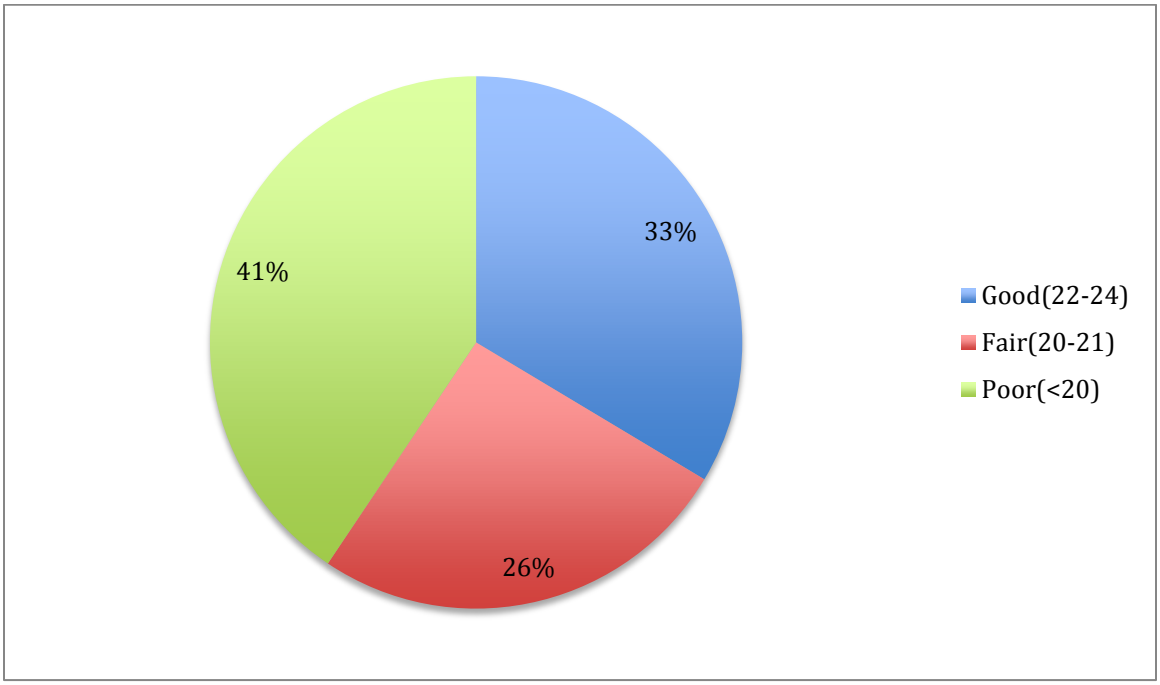

Figure 4.1 Knowledge about risk factors of breast cancer among the participants.

The most well known risk factor among the participants was family history of breast cancer (81.3%). Less than half of the participants knew that early menarche (39.2) and late first pregnancy (36.4) were risk factors for breast cancer, and about half of them knew that eating fatty foods (53.4%) increased ones risk of developing breast cancer as shown in Table 4.2.

Table 4.2 Knowledge of risk factors of breast cancer

Risk Factor	Number with correct answers	Percent
Increasing Age	196	69.3
Family History	230	81.3
Early menarche	111	39.2
Late first pregnancy	103	36.4
Breastfeeding lowers risk	212	74.9
Fatty Foods	151	53.4
Excessive alcohol intake	189	66.8
Hormone replacement therapy	206	72.8

Source: Field work, July 2019

4.4 Knowledge about signs and symptoms of breast cancer

Five questions were asked about breast cancer signs and symptoms with a score of 3 for an accurately answered question, 2 for participants who do not know and 1 for participants who wrongly answered the question. A minimum score a participant could get was 5 and a maximum score was 15. A participant who accurately answered at least 4 out of the 5 questions and did not know the correct answer for 1 of the questions scored between 14 and 15 and was regarded as having good knowledge about the signs and symptoms. Scores between 12 and 13 were regarded as having fair knowledge. Scores of less than 12 were regarded as having poor knowledge.

About 64% of the participants had good knowledge about the signs and symptoms of breast cancer. A lower proportion of the participants (15.2%) had poor knowledge about the signs and symptoms .(Figure 4.2).

Among the different occupation, medical doctors had the highest proportion with good knowledge of breast cancer (91.7%) followed by general nurses (68.4%), midwives (58.2%) and physician assistants (25.0%).

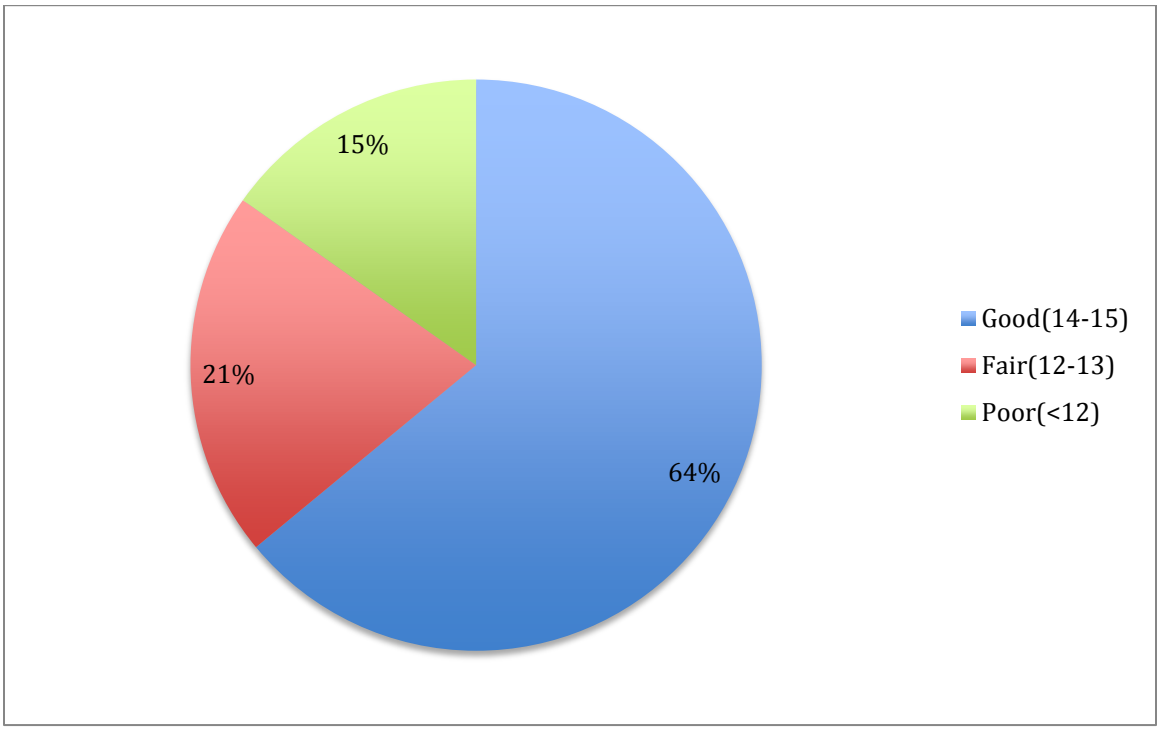

Figure 4.2 Knowledge about signs and symptoms of breast cancer among the participants

The most commonly known symptom of breast cancer is the presence of an unusual painless lump (88%) and the presence of a swelling in the armpit is the least known symptom (68.2%) (Table 4.3).

Table 4.3 Knowledge about signs and symptoms of Breast cancer

Sign or Symptom	**Number with correct answers**	**Percent**
Unusual painless lump	249	88.0
Swelling in the armpit	193	68.2
Discoloration of skin of the breast	217	76.7
Dimple on the skin of the breast	196	69.3
Unusual nipple discharge (bloody discharge)	233	83.0

Source: Field work, July 2019

4.5 Knowledge about screening methods of detecting breast cancer.

Majority of the participants knew about breast self examination (95.4%). About 69% of the participants knew about clinical breast examination. Mammogram screening was known by about 54% of the participants (Figure 4.3).

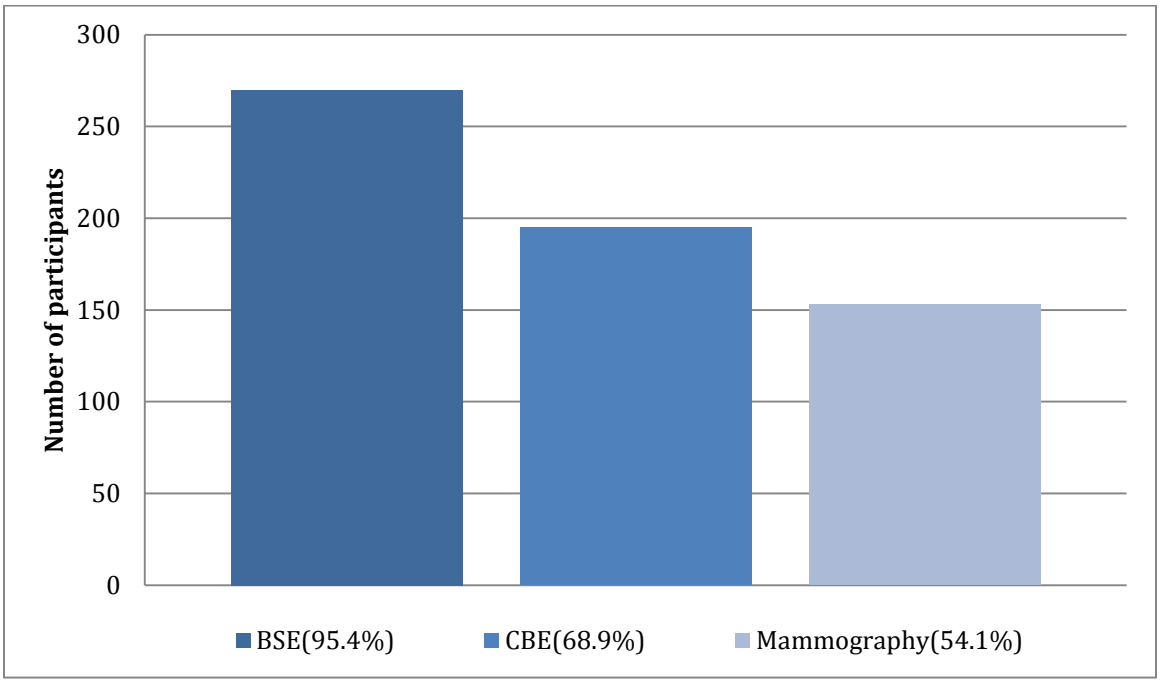

Figure 4.3 Knowledge about breast cancer screening methods

4.6 Prevalence of breast cancer screening

The proportion of participants who had ever had BSE, CBE and mammogram done in the last year was 77.4%, 21.6% and 1.1% respectively (Figure 4.4, Table 4.4).

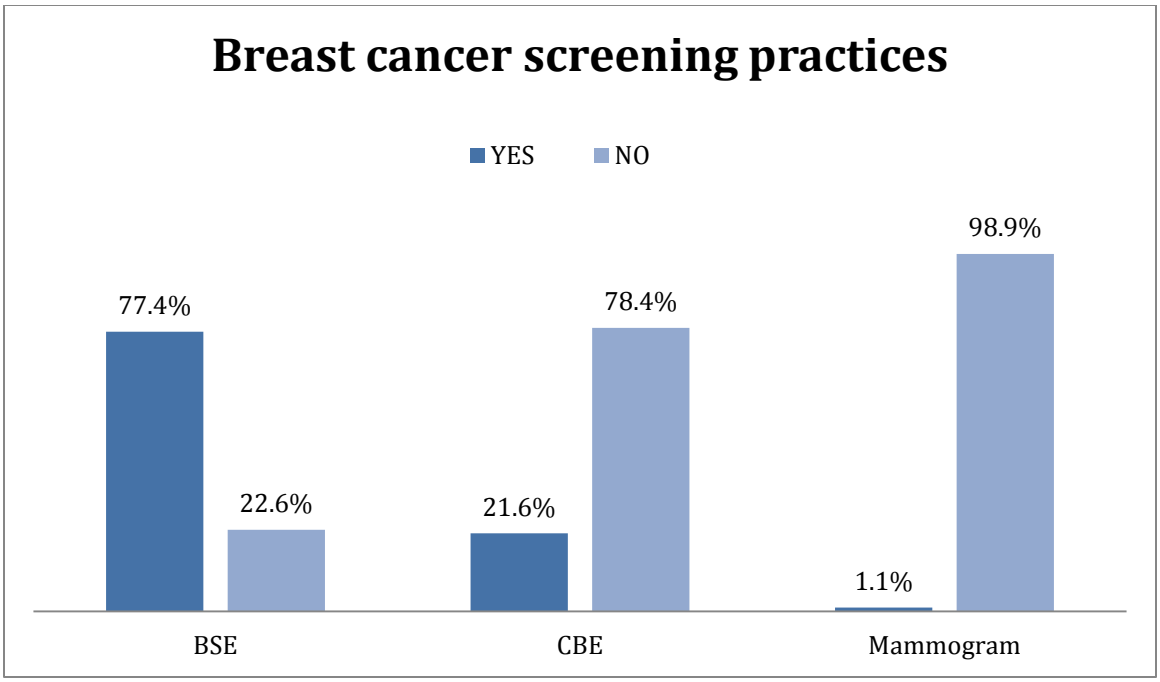

Figure 4.4 Breast cancer screening practices of participants

Table 4.4 Prevalence of breast cancer screening among participants

Breast cancer screening	Proportion	95% confidence interval	
Breast Self examination	0.7739	0.7206	0.8212
Clinical Breast examination	0.2155	0.1691	0.2681
Mammography	0.0106	0.0022	0.0307

Source: Field work, July 2019

Breast self examination was the most commonly used screening method used by the participants. Out of the 219 participants who practiced BSE, approximately 25% of them did not know the correct starting procedure of performing BSE. And about 40% of them had performed it in the last three months (Figure 4.5).

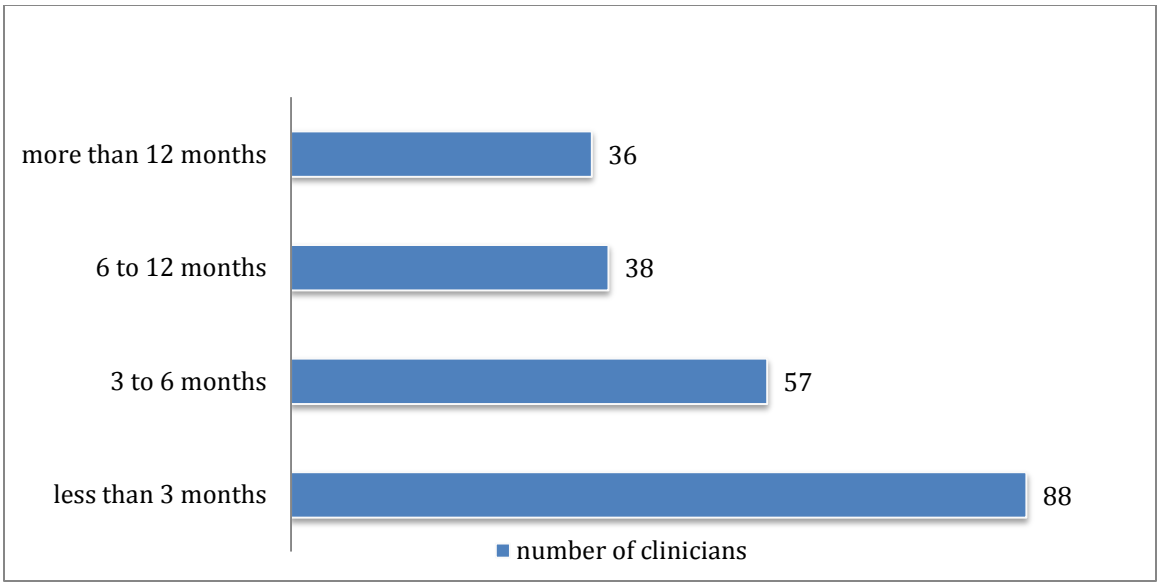

Figure 4.5 Time BSE was last performed by participants

Comparing BSE among the different occupations, medical doctors had the highest proportion of those who practice BSE(95.8%). General nurses are the second highest group with a proportion of 81.2% followed by the midwives with 73.6%. The Physician assistants had the lowest prevalence of 43.8% (Table 4.5).

Table 4.5 BSE practice by occupation

Occupation	**Practice of breast cancer**	
	Yes frequency(%)	No frequency(%)
Medical Doctor	23 (95.8)	1 (4.2)
General nurse	108 (81.2)	25 (18.8)
Physician Assistant	7 (43.8)	9 (56.2)
Midwife	81 (73.6)	29 (26.4)

Source: Field work, July 2019

4.7 Bivariate analysis between BSE and demographic factors

The participants' occupation showed statistically significant relationship with BSE (Table 4.6).

Table 4.6 Bivariate analysis between BSE and demographic factors

Variable	**Breast Self examination**			
	Yes N (%)	**No N (%)**	**Chi square**	**p-value**
Occupation			17.00	**0.001**
Medical doctor	23 (10.5)	1 (1.6)		
General nurse	108 (49.3)	25 (39.1)		
Physician assistant	7 (3.2)	9 (14.1)		
Midwife	81 (36.9)	29 (45.3)		
Marital Status			0.68	0.878
Single	138 (63.1)	42 (65.6)		
Married	79 (36.1)	22 (34.4)		
Widowed	2 (0.9)	0 (0)		
Income level			2.60	0.273
<1000	117 (53.4)	41 (64.1)		
1001 – 2001	64 (29.2)	16 (25)		
>2001	38 (17.4)	7 (10.9)		

Source: Field work, July 2019

4.8 Bivariate analysis between CBE and demographic factors

The participants' marital status and income level showed statistically significant relationship with the CBE (Table 4.7)

Table 4.7 Bivariate analysis between CBE and demographic factors

Variable	**Clinical Breast examination**			
	Yes N (%)	**No N (%)**	**Chi square**	**p-value**
Occupation			3.42	0.332
Medical doctor	2 (3.3)	22 (9.9)		
General nurse	33 (54.1)	100 (45.1)		
Physician assistant	3 (4.9)	13 (5.9)		
Midwife	23 (37.7)	87 (39.2)		
Marital Status			8.97	**0.030**
Single	31(50.8)	149(67.1)		
Married	29 (47.5)	72 (32.4)		
Widowed	1(1.6)	1 (0.5)		
Income level			7.14	**0.028**
<1000	25 (40.9)	133(59.9)		
1001 – 2001	24 (39.3)	56 (25.2)		
>2001	12 (19.7)	33 (14.9)		

Source: Field work, July 2019

4.9 Bivariate analysis between Mammogram and demographic factors

The participants' income level showed statistically significant relationship with the practice of mammography (Table 4.8).

Table 4.8 Bivariate analysis between Mammogram and demographic factors

Variable	**Mammogram**			
	Yes N (%)	**No N (%)**	**Chi square**	**p-value**
Occupation			1.15	0.765
Medical doctor	0 (0)	24 (8.6)		
General nurse	1 (33.3)	132 (47.1)		
Physician assistant	0 (0)	16 (5.7)		
Midwife	2 (66.7)	108 (38.6)		
Marital Status			1.74	0.629
Single	3 (100)	177 (63.2)		
Married	0 (0)	101 (36.1)		
Widowed	0 (0)	2 (0.7)		
Income level			6.63	**0.036**
<1000	0 (0)	158 (56.4)		
1001 – 2001	1 (33.3)	79 (28.2)		
>2001	2 (66.7)	43 (15.4)		

Source: Field work, July 2019

4.10 Health Belief Model constructs

Four out of the six Health Belief Model constructs developed by Champion et al(2008) have previously been used to assess Health Beliefs of participants towards breast cancer screening. The health beliefs of the female clinicians towards BSE, CBE and mammography were assessed using these constructs.

There were 9 questions under the self-efficacy scale, 6 questions under the Perceived benefit scale, 11 questions under the Perceived barriers scale and 3 questions under the Perceived susceptibility scale. All questions offered answers using a likert scale ranging from "strongly disagree" scoring 1 point to Strongly agree scoring 5 point.

Higher scores implied Higher Self efficacy to initiate breast cancer screening, Higher perceived benefits of breast cancer screening, higher perceived barriers to breast cancer screening and higher perceived susceptibility of developing breast cancer

For each construct, participants with scores higher than the average were graded as "HIGH" for that construct and those with scores lower than the average were graded as "LOW" for that construct.

Table 4.9 The measured Health belief model constructs among participants

Health belief model constructs	**Range**	**Mean(SD)**
Self-efficacy	35	36.5(5.1)
Perceived benefits	22	25.4(4.1)
Perceived barriers	38	20.4(7.8)
Perceived susceptibility	12	5.3(2.7)

Source: Field work, July 2019

4.11 Self-efficacy towards breast cancer screening

The score for this construct ranges from 9 to 45. The average score for the study participants was approximately 37±5. More than half of the participants (54%) had low self-efficacy. This means, most of the participants did not believe in their own ability to commence steps to receive either a Clinical breast examination or Mammography (Figure 4.6, Table 4.9)

4.12 Perceived benefits for breast cancer screening

The score for this construct ranges from 6 to 30. The average score for the study participants was approximately 25±4. About 55% of the participants had high perceived benefits. This means more than half of the participants believe that screening for breast cancer is beneficial (Figure 4.6, Table 4.9).

4.13 Perceived barriers towards breast cancer screening

The score for this construct ranges from 11 to 55. The average score for the study participants was approximately 20±8. Almost half of the participants (49%) had high perceived barriers. This means that almost half of the participants believed, that there were obstacles preventing them from taking part in breast cancer screening (Figure 4.6, Table 4.9).

4.14 Perceived susceptibility to breast cancer

This score for this construct ranges from 3 to 15. The average score for the study was approximately 5±3. Less than half of the participants (45%) had high perceived susceptibility. This implies that majority of participants did not believe they had a risk for developing breast cancer (Figure 4.6, Table 4.9).

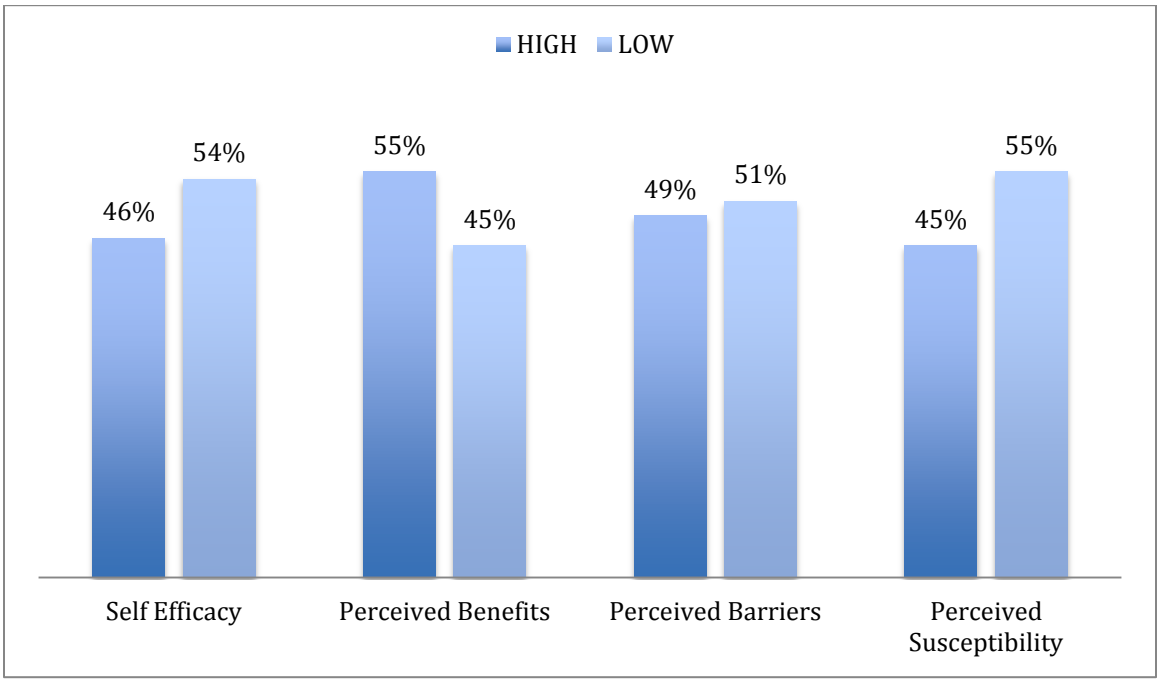

Figure 4.6 Health belief model constructs among participants

4.15 Cronbachs alpha test for Health belief model constructs

The Cronbachs alpha test was used to estimate the internal consistency reliability of the four constructs of the Health belief model used in this study. The value of 0.70 is acceptable for this test (Table 4.10).

Table 4.10 Cronbachs alpha test scores for Health belief model constructs

Health Belief model constructs	Scale reliability coefficient
Self efficacy	0.8373
Perceived Benefits	0.8508
Perceived Barriers	0.9095
Perceived susceptibility	0.8675

Source: Field work, July 2019

4.16 Bivariate analysis between BSE and Health belief model constructs

There was statistically significant association between breast self examination and the Health Belief Model constructs (perceived benefits and perceived barriers) when bivariate analysis was conducted (Table 4.11).

Table 4.11 Bivariate analysis between BSE and Health belief model constructs

Variable	**Breast Self examination**			
Health Belief	**Yes N (%)**	**No N (%)**	**Chi square**	**p-value**
Self-efficacy			0.01	0.909
Low self-efficacy	118 (53.9)	35 (54.6)		
High self-efficacy	101 (46.1)	29 (45.3)		
Perceived benefits			12.31	**0.000**
Low perceived benefits	86 (39.3)	41 (64.1)		
High perceived benefits	133 (60.7)	23 (35.9)		
Perceived Barriers			17.68	**0.000**
Low perceived barrier	127 (57.9)	18 (28.1)		
High perceived barrier	92 (42.1)	46 (71.9)		
Perceived Susceptibility			1.99	0.158
Low perceived Susceptibility	115 (52.5)	40 (62.5)		
High perceived Susceptibility	104 (47.5)	24 (37.5)		

Source: Field work, July 2019

4.17 Bivariate analysis between CBE and Health belief model constructs

There was no association between clinical breast examination and the Health Belief Model constructs when bivariate analysis was conducted (Table 4.12)

Table 4.12 Bivariate analysis between CBE and Health belief model constructs

Variable	**Clinical breast examination**			
Health Belief	**Yes N (%)**	**No N (%)**	**Chi square**	**p-value**
Self-efficacy			0.09	0.767
Low self-efficacy	34 (22.2)	119 (77.8)		
High self-efficacy	27 (20.8)	103 (79.2)		
Perceived benefits			0.16	0.690
Low perceived benefits	26 (20.5)	101 (79.5)		
High perceived benefits	35 (22.4)	121 (77.6)		
Perceived Barriers			0.63	0.427
Low perceived barrier	34 (23.5)	111 (76.5)		
High perceived barrier	27 (19.6)	111 (80.4)		
Perceived Susceptibility			2.47	0.116
Low perceived Susceptibility	28 (18.1)	127 (81.9)		
High perceived Susceptibility	33 (25.8)	95 (74.2)		

Source: Field work, July 2019

4.18 Bivariate analysis between Mammography and health belief model constructs

Bivariate analysis did not yield significant associations between mammography and the 0health belief model constructs (Table 4.13).

Table 4.13 Bivariate analysis between Mammography and health belief model constructs

Variable	**Mammography**			
Health Belief	**Yes N (%)**	**No N (%)**	**Chi square**	**p-value**
Self-efficacy			2.58	0.108
Low self-efficacy	3 (1.9)	150 (98.1)		
High self-efficacy	0 (0)	130 (100)		
Perceived benefits			0.58	0.446
Low perceived benefits	2 (1.6)	125 (98.4)		
High perceived benefits	1 (0.6)	155 (99.4)		
Perceived Barriers			3.19	0.074
Low perceived barrier	0 (0)	145 (100)		
High perceived barrier	3 (2.2)	135 (97.8)		
Perceived Susceptibility			0.56	0.453
Low perceived Susceptibility	1 (0.7)	154 (99.3)		
High perceived Susceptibility	2 (1.6)	126 (98.4)		

Source: Field work, July 2019

4.19 Logistic regression of determinants of breast cancer screening

In the first model (Table 4.14), breast self examination was the dependent variable. The occupation was found to be significant in the regression model ($p<0.05$). Controlling for age, marital status, work experience, knowledge about risk factors and signs and symptoms, the odds of practicing Breast self examination among general nurse is 92% lesser than among medical doctors ($p=0.010$), the odds among midwives is 95% lesser than among medical doctors ($p=0.007$) and the odds among physician assistants is 99% lesser than among medical doctors ($p=001$).

In the second step, the health belief model constructs were added on. The odds of practicing breast self examination is 3.59 times among those with high perceived benefits compared to those with low perceived benefits ($p=0.001$). The odds of practicing breast self examination decreases by 75% among those who have high perceived barriers to breast cancer screening compared to those who have low perceived barriers ($p<0.001$). Participants with high perceived susceptibility to breast cancer have 2.16 times increased odds of practicing breast self examination compared to those with low perceived susceptibility.

The Likelihood ratio test for the two steps in this nested model showed that the health belief model constructs were significantly associated with BSE ($\chi^2(4) = 31.4$, $p < 0.001$), hence the second model is more useful.

In the second model (Table 4.15), clinical breast examination was used as the dependent variable. In step 1, Age was found to be significant at p-value of 0.024. Controlling for all other factors in the model, the odds of having clinical breast examination done increases

with increase age i.e. older participants were more likely to practice clinical breast examination.

In step 2, the health belief model constructs were added. Age continued to be significant (p=0.018). Work experience was significant controlling for all other factors in the model. The odds of having clinical breast examination decreases as work experience increases (p=0.043). Occupation was also significant across the different groups. There was no statistically significant association between Clinical breast examination and the health belief model constructs.

The Likelihood ratio test for the two steps in this nested model showed that the health belief model constructs had no association with CBE ($\chi^2(4) = 5.1$, $p = 0.27$)

Logistic regression model for mammogram practice could not produce estimates. This is due to the very low proportion that has had mammogram among the participants that is 3 out of 283 participants had ever had mammogram done.

Table 4.14 Hierarchal logistic regression of determinants of BSE

	Step 1			Step 2		
VARIABLES	**Odds Ratio**	**95% CI**	**p-value**	**Odds Ratio**	**95% CI**	**p-value**
DEMOGRAPHICS						
Age	0.93	0.85 - 1.02	0.106	0.93	0.85 – 1.02	0.129
General Nurse	0.08	0.01 – 0.70	**0.022**	0.21	0.02 – 1.83	0.156
Physician Assist	0.01	0.00 – 0.15	**0.000**	0.04	0.00 – 0.42	0.008
Midwife	0.05	0.01 – 0.45	**0.007**	0.12	0.01 – 1.08	0.058
Married	1.29	0.63 – 2.66	0.491	0.91	0.41 – 2.00	0.812
Work experience	1.05	0.92 - 1.21	0.459	1.04	0.89 - 1.21	0.635
Knowledge risk factors-Fair	3.19	1.37 – 7.49	0.007	4.34	01.67 – 11.24	0.003
Knowledge risk factors-Poor	2.09	0.99 – 4.41	0.054	3.36	0.41 – 7.98	0.006
Knowledge signs &symptoms -Fair	1.67	0.73 – 3.80	0.226	1.71	0.70 – 4.14	0.236
Knowledge signs &symptoms –Poor	0.96	0.38 – 2.42	0.929	1.20	0.42 – 3.41	0.732
HEALTH BELIEFS						**0.000**
High Self-Efficacy				0.73	0.37-1.43	0.355
High Perceived benefit				3.59	1.72 – 7.51	**0.001**
High Perceived barriers				0.25	0.12 – 0.53	**0.000**
High Perceived susceptibility				2.16	1.05 – 4.43	**0.036**

Source: Field work, July 2019

Table 4.15 Hierarchal logistic regression of determinants of CBE

	Step 1			Step 2		
VARIABLES	**Odds Ratio**	**95% CI**	**p-value**	**Odds Ratio**	**95% CI**	**p-value**
DEMOGRAPHICS						
Age	1.11	1.01 - 1.22	**0.024**	1.12	1.02 – 1.23	**0.018**
General Nurse	7.19	1.45 – 35.78	0.016	8.66	1.67 – 44.91	**0.010**
Physician Assist	6.01	0.79 – 45.78	0.083	8.93	1.09 – 73.39	**0.042**
Midwife	4.51	0.89 – 22.93	0.070	5.42	1.03 – 28.53	**0.046**
Married	1.63	0.81 – 3.27	0.170	1.42	0.69 – 2.91	0.336
Work experience	0.88	0.76 - 1.01	0.077	0.86	0.74 - 1.00	**0.043**
Knowledge risk factors-Fair	0.50	0.21 – 1.16	0.107	0.47	0.20 – 1.11	0.085
Knowledge risk factors-Poor	0.92	0.43 – 1.96	0.819	0.90	0.41 – 1.99	0.797
Knowledge signs &symptoms -Fair	0.44	0.18 – 1.05	0.065	0.38	0.15 – 0.94	0.037
Knowledge signs &symptoms –Poor	0.72	0.27 – 1.87	0.497	0.64	0.24 – 1.72	0.376
						0.274
HEALTH BELIEFS				0.82	0.43 - 1.56	0.542
High Self-Efficacy						
High Perceived benefit				1.07	0.55 – 2.11	0.834
High Perceived barriers				0.62	0.32 – 1.21	0.162
High Perceived susceptibility				1.89	0.98 – 3.65	0.056

Source: Field work, July 2019

CHAPTER FIVE

DISCUSSION

5.1 Socio-demographic characteristics

With a median age 27 ± 7 years for the participants, these female clinicians are relatively young with many years of healthcare services to provide. It is important then that they have the right knowledge and attitude regarding breast cancer screening. There are more nurses and midwives compared to doctors. The nurses and midwives spend more time with clients compared to doctors, and hence have a huge role to play in influencing the clients' health beliefs. The monthly income level of the clinicians is low, with more than half of them receiving less than 1000 cedis per month. Most of the female clinicians were not married. Also worth mentioning is that these two facilities where the clinicians worked did not have breast clinics.

5.2 Knowledge about risk factors of breast cancer

Knowledge about the risk factor of breast cancer is important as it influences one's decision to partake in breast cancer screening. Identifying persons with risk factors ensures that susceptible individuals are picked up early to undergo periodic screening so as to detect the disease early. About 26% of the participants in this study had poor knowledge about the risk factors of breast cancer. This proportion is better compared to other studies done among female health workers in Africa. A study among nurses in Kumasi reports that 63% of the respondents had very poor knowledge about the risk

factors of breast cancer that is they answered less than 2 questions correctly out of the five questions asked (Ohene-Yeboah et al., 2013).

A similar study in Nigeria reported that 55% of female health workers had poor knowledge about the risk factors of breast cancer (Akhigbe & Omuemu, 2009). In Morocco, a similar study showed that 38% of the female healthcare professionals had poor knowledge about the risk factors of BC (Ghanem et al., 2011). Although there may be differences in the scale of measurement of the knowledge, all these studies reported low level of knowledge of breast cancer risk factors, which is inappropriate for clinicians. A study done in the United Kingdom among general practitioners reported that a higher proportion of the participants accurately identified risk factors of breast cancer among patients and referred them for breast cancer screening.

The low knowledge about risk factor is more prevalent in low and middle-income countries(Espina et al., 2017). It is important to know the risk factors of breast cancer so that the health workers, after correctly identifying them, can provide education and recommend appropriate screening to the women with high risk of breast cancer. This contributes to the low uptake of breast cancer screening in developing countries and the resultant effect of delayed presentation and diagnosis of women in these countries (Espina et al., 2017).

In Ghana, nationwide breast cancer screening is most effectively done in the month of October each year. October has been marked as breast cancer awareness month and various facilities offer free breast cancer screening to all women throughout the month. However, women with known risk factors for breast cancer may require more frequent screening. It is therefore important for clinicians to be very knowledgeable about the risk

factors so as to recommend high-risk patients for breast cancer screening. This will help reduce the number of breast cancer cases reporting to facilities at advanced stages of the disease.

This study also showed differences in the level of knowledge of risk factors among the different occupations in the health sector. Medical doctors were found to be more knowledgeable about breast cancer risk factors compared to the nurses. This may be due to differences in the syllabus of the two groups during their training in school. This is of great concern, as nurses and midwives greatly outnumber the medical doctors and have more contact time with the patients and clients. The knowledge of the nurses about these risk factors should be improved through targeted education and training to allow them to pick up identify high risk cases early and refer for specialist management.

5.3 Knowledge about signs and symptoms of breast cancer

Knowledge about the signs and symptoms of breast cancer among the clinicians in this study was good, with 85% having adequate knowledge. This finding is consistent with other studies carried out in Ghana (Ohene-Yeboah et al., 2013), and Nigeria(Ibrahim & Odusanya, 2009; Madubogwu et al., 2017).

Early detection is the key to successful outcomes in breast cancer management. Astute clinicians who are well versed about the signs and symptoms of breast cancer play a vital role in early detection of breast cancer cases. Poor knowledge about the symptoms and signs of breast cancer will result in missed opportunities for cases to be detected and treated early.

Breast cancer should be suspected in all cases of breast disease. Clinicians must have a low threshold for suspecting breast cancer and must rule it out very early as soon as the patient reports. Clinicians must also know these signs and symptoms to be able to educate women appropriately about what to look out for and the need to take immediate action by reporting to the health facility. This is essential to promote early suspicion of the disease and to allow for prompt management to be given to the women so as to improve the survival rates of women diagnosed with breast cancer.

5.4 Breast cancer screening practices

Breast cancer screening is the hallmark to early detection and treatment of the disease. The three breast cancer screening methods are breast self examination, which require women to be well-skilled to be able to perform it monthly on themselves, clinical breast examination which require clinicians to perform breast examination on women who report to their facilities, and mammogram which is the use of a machine to detect early breast changes.

In this study, it was found out that the practice of breast self examination was good. Out of the 283 clinicians, 219(77%) practice it. However, out of the 219 clinicians, only 40% had performed it in the last three months. The high prevalence of BSE compared to other screening modalities is consistent with findings from a similar study carried out in Kumasi, Ghana among nurses in KATH were 72.1% of them had BSE done(Ohene-Yeboah et al., 2013). In Nigeria, practice of BSE among female health workers was slightly higher than what was found out in this study. Akhigbe and Omuemu(2009) reported that among female health workers in Benin city Nigeria, about 78% practice

BSE. Another study among tertiary health workers in Anambra state, Nigeria also reported 81.9% of the respondents practiced BSE (Madubogwu et al., 2017).

Although the ACS no longer recommends BSE as a reliable breast cancer screening method, its use is still beneficial in low resource settings where CBE and mammogram practice is not readily available to women.

This study also showed that medical doctors are more likely to practice BSE compared to the other professions. This may be due to the facts that curriculum of medical school includes extensive education of breast cancer, hence their knowledge about breast cancer translates into the practice of breast cancer screening.

This study also showed that the proportion of clinicians who had ever had CBE is 21.6%. This proportion was low and unacceptable. Other studies have also reported low prevalence of CBE. In KATH, a tertiary health facility in Kumasi Ghana, which has a functional breast clinic, the proportion of nurses who had had CBE was 21.1%. This finding is not different from reports in other African countries. In Morocco, a study reported that CBE prevalence among nurses was 26.1% (Ghanem et al., 2011). The fact that these clinicians have free access to this method of screening but still do not utilize it is inadmissible. They should be encouraged to have CBE done. This may be achieved through the establishment of yearly institutional care to be given to workers of health facilities, which should include CBE as part of the routine medical examination. This will improve workers satisfaction and may help promote positive health beliefs of the health workers towards breast cancer.

The proportion of mammography use in this study was very low. Only three out of the 283 participants had ever had breast cancer screening. This may be as a result of the

relatively young age (median age of 27 ± 7 years) of the participants hence they do not require mammogram screening. According to the ACS, it is recommended that women between the ages of 40 and 44 should have annual mammogram screening. In this study, three out of the fourteen women who were above 40 years had ever had mammogram screening. Low uptake of mammogram continues to be a challenge in middle and low-income countries.

The prevalence of mammogram screening among nurses in KATH was reported to be 10%(Ohene-Yeboah et al., 2013). In Nigeria, the prevalence among female health workers was reported to be 1.9% in a study carried out in Nnewi in Anambra state (Madubogwu et al., 2017). Another study in a different state in Nigeria reported a prevalence of 3.1% for mammography (Akhigbe & Omuemu, 2009). In Morocco, an African country with a relatively better socioeconomic status, a similar study among healthcare professionals revealed that 22% of them had ever had mammogram done. These reports from Africa are however abysmally lower compared to developed countries. In developed countries, national breast cancer screening programmes have been established to reduce mortality from breast cancer (Blank et al., 2000; Johns et al., 2017). Indeed, the ideal situation is that breast cancer screening should be a national policy as implemented in Finland(Hakamal et al., 1991).

Mammogram is the best way to detect breast cancer at an early stage even before clinical signs and symptoms occur(Champion et al., 2005a). Mammogram screening is however challenging in developing countries due to the poor economy coupled with the high cost of mammogram (Black & Richmond, 2019). It is then that we intensify efforts to promote the other screening modalities through health education and promotion.

5.5 Health beliefs of female clinicians

Majority of the participants (54%) had low perceived self-efficacy. This implies that majority did not have confidence in their own ability to initiate steps to have breast cancer screening done. Various factors accounted for the low self-efficacy which includes fear of what might be found if they had the screening done, inability to pay for screening services and the prioritization of other concerns in their life over breast cancer screening. Most participants (56%) had salary less than ¢1000. In Ghana, mammogram costs between GH¢350 to GH¢500. This makes it expensive for the average Ghanaian woman to pay for this service. Though clinical breast examination is free, the free service is limited to few specific facilities such as the breast clinic in Korle Bu teaching hospital Accra, which serves the southern sector of Ghana and Komfo Anokye Teaching hospital Kumasi, which serves the northern sector of Ghana. In majority of hospitals and clinics, patients have to pay the recommended consultation fees. Research has shown that an important determinant to the uptake of breast cancer screening in Ghana is the cost of the service (Opoku et al., 2012).

Majority of participants (55%) believe that breast cancer screening is beneficial. This result is consistent with what was found in a similar study in Austin, Texas where majority of the participants reported high perceived benefits towards clinical breast examination and mammography (Todd, 2013).

A significant proportion of the participants (51%) had high perceived barriers towards breast cancer screening. This shows that there were obstacles that prevented them from adopting breast cancer screening. This result is in contrast to a study done in Texas where majority of participants reported low perceived barriers (Todd, 2013). In this study, many

participants believed that breast cancer screening is time wasting, the health professionals who do the screening are rude and that screening mammography exposes them to unnecessary radiation. Others too said they simply cannot remember to schedule a breast cancer screening. In addition, they also believed that they had other problems more important than breast cancer screening, and thinking that breast cancer screening will be too painful. These barriers have to be addressed in order to promote breast cancer screening among women.

Majority of the participants (55%) in this study were found to have low perceived susceptibility towards breast cancer. This may explain the low prevalence of breast cancer screening among the clinicians. When one feels she is not likely to get a disease, the person will not take preventive steps against the disease.

For female health workers to have a positive attitude towards breast cancer screening, they may have to change their health beliefs towards breast cancer screening. This is important since they serve as role models to the general public in terms of health issues, so that they can positively influence women to take up breast cancer screening.

CHAPTER SIX

Conclusions and recommendations

6.1 Conclusions

The knowledge of clinicians in this study about signs and symptoms of breast cancer is adequate. Their knowledge about the risk factors of breast cancer is however low.. This influences their attitude towards breast cancer screening as seen in the low proportion of clinicians practicing breast cancer screening. Medical doctors had higher level of knowledge about the signs, symptoms and risk factors of breast cancer compared to the nurses and midwives. The proportion of medical doctors who practiced BSE was higher compared to nurses and midwives.

The proportion of clinicians who practice breast cancer screening was low. Breast self examination had the highest prevalence among the three methods, followed by clinical breast examination then mammography. The marital status, income level and occupation of the participants were all related to the practice of breast cancer screening.

This study also showed that older participants and participants with higher income level were more likely to practice CBE.

The health beliefs of the clinicians measured showed that majority of them had low self-efficacy, high perceived benefit, high perceived barriers and low perceived susceptibility. These explain the low uptake of breast cancer screening among the participants.

Participants with high perceived benefits, high susceptibility and low perceived barriers were more likely to practice BSE. There was however no relationship between Clinical breast exam and mammography and the health constructs.

6.2 Recommendations

1. The Ghana Nurses and Midwives Council should improve nurses' knowledge about risk factors, signs and symptoms of breast cancer through continuing professional training programs.
2. Public health officers in Ga South and Ga West municipal hospitals should educate the clinical staff of these facilities about breast cancer screening to increase the level of practice among clinicians.
3. The management of Ga South and Ga West municipal hospitals should establish breast clinics in these facilities to make information about breast cancer and breast cancer screening more accessible to the female healthworkers as well as women in their catchment areas.

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Appendix

Appendix 1: Participants Information Sheet
Title of study

FACTORS INFLUENCING BREAST CANCER SCREENING AMONG FEMALE CLINICIANS AT THE GA WEST AND GA SOUTH MUNICIPAL HOSPITALS IN ACCRA.

Introduction

My name is Aba Amoasiwah Ghansah, an MPH student of the School of Public Health at the University of Ghana, Legon. I am a Medical Doctor. My contact information is as follows:

Address: P.O. BOX DS 245, Dansoman, Accra

Telephone: 0544690721

Email: abaghansah@ymail.com

Background and Purpose of Study

Breast cancer is the commonest occurring cancer among women worldwide. It is the principal cause of mortalities in women resulting from cancer. It is reported that one out of nine women, will be diagnosed with breast cancer in their lifetime. The chances of survival are significantly high if the disease is detected early. Early detection can be achieved through the adoption of breast cancer screening practices. In Ghana, the issue of delayed diagnosis continues to persist despite various efforts to reduce breast cancer mortality. Several studies show that screening practices among women is still low despite nationwide education spearheaded by clinicians.

The aim of this study is to evaluate health beliefs, knowledge regarding risk factors for breast cancer and screening practices among female clinicians at two municipal hospitals.

Nature of research

This study will be a cross-sectional descriptive survey in the two municipal hospitals in Accra Metropolitan area. The study population will comprise of 283 female clinicians. Data will be collected via a questionnaire. Participants will be required to fill the questionnaire.

Participant Involvement

The study seeks to interview female clinicians, which includes medical doctors, physician assistants and nurses. You will be required to fill the questionnaire truthfully and to the best of your knowledge. The information you provide will not be used anywhere, against you or otherwise, for anything other than this study. Your participation in this study will take fifteen minutes on the average.

Potential Risk

This study poses a potential risk to participants who have had any relative or friend die from breast cancer. The participant may be emotionally disturbed by the memory of the loved one. Participants who have a family history of the disease may also feel uncomfortable answering some questions in this study.

Benefits

This study does not come with any direct reward. It will however inform decision makers of possible strategies to help in the early detection of breast cancer and hence improve survival of the disease among women.

Cost

This study is self-sponsored. The cost to be incurred will be from printing of questionnaires, transportation to study site, remuneration for participant, and other miscellaneous costs.

Compensation

Each Participant will be given a ball pen after the questionnaire is filled.

Confidentiality

Your name and identity are not needed in the study. However the information you are going to provide will be coded and will be treated strictly confidential. You are assured of total confidentiality to the information you will give. Apart from the researcher, the research assistants and supervisor of this research, no one else will have access to information provided whether in part or whole. Data collected will be stored under lock and key then destroyed after a minimum of three years as per research protocol.

Voluntary Participation/Withdrawal

Participation in this study is voluntary and your consent will be sought. You are at liberty to decline participation or withdraw from the study at any time with no consequences. However, I will humbly encourage your full participation.

Outcome and Feedback.

The data given will be used solely for the purpose of this study. The results from this study, findings and recommendations would be available at the School of Public Health Library.

Funding

This research is self-sponsored.

Conflict of interest

I have no conflicting interest in this study.

Sharing of Participants information/data

The researcher will own the data you give for the study. It would be shared with my supervisor through a meeting. Other stakeholders like my examiners will be privy to the data from the study.

PLEASE NOTE: A copy of the Information sheet and consent form will be given to you after it has been signed or thumb printed to keep.

In case of any concern you can contact the following:

Aba Amoasiwah Ghansah

School of Public Health, University of Ghana, Legon

0544690721

abaghansah91@gmail.com

OR

Dr Priscillia Nortey

School of Public Health, University of Ghana, Legon

0208181120

prisnorts@yahoo.co.uk

OR

Mrs Hannah Frimpong

GHS-ERC Administrator

0243235225 / 0507041223

Hannah.Frimpong@ghsmail.org

Appendix 2: Consent Statement
TOPIC: Factors influencing breast cancer screening among female clinicians at the Ga West and Ga South municipal hospitals in Accra

PARTICIPANTS' STATEMENT

I acknowledge that I have read the purpose and contents of the Participants' Information Sheet and that all questions have been satisfactorily explained to me in a language I understand (English). I fully understand the contents and any potential implications as well as my right to change my mind (i.e. withdraw from the research) even after I have signed this form.

I voluntarily agree to be part of this research.

Name or Initials of Participant:…….. ID Code

……..

Participants' Signature: ……

Date:…….

INVESTIGATOR STATEMENT AND SIGNATURE

I certify that the participant has been given ample time to read and learn about the study. All questions and clarifications raised by the participant have been addressed.

Researcher's name…….

Signature …….

Date…….

Appendix 3: Questionnaire

FACTORS INFLUENCING BREAST CANCER SCREENING AMONG FEMALE CLINICIANS AT THE GA WEST AND GA SOUTH MUNICIPAL HOSPITALS

QUESTIONNAIRE

Respondent's contact:	**Date:**	**Respondent's code:**	**Hospital:**

Question number	**Question**	**Response**	**Code**
	SECTION A: SOCIO-DEMOGRAPHIC CHARACTERISTICS **Please tick the appropriate answer**		
01	Occupation	Medical doctor [ ] General nurse [ ] Physician assistant [ ] Midwife [ ]	1 2 3 4
02	Marital status:	Single [ ] Married [ ] Widowed [ ] Separated/Divorce [ ]	1 2 3 4
03	Age (in years at the last birthday)		
04	Work experience in years		
05	Income level	< ¢ 1,000 [ ] ¢ 1001 - ¢ 2000 [ ] >2001 [ ]	1 2 3
	SECTION B: KNOWLEDGE ABOUT BREAST CANCER AND BREAST CANCER SCREENING **Please tick only one of the options on the right for each statement given**		
06	One's risk of developing breast cancer increases with increasing age	Agree [ ] Don't know [ ] Disagree [ ]	3 2 1
07	If one's sister, mother, cousin or grandmother has/had breast cancer it increases one's risk of developing breast cancer	Agree [ ] Don't know [ ] Disagree [ ]	3 2 1
08	Menstruating before age 13 is at risk of developing breast cancer later on in life	Agree [ ] Don't know [ ] Disagree [ ]	3 2 1
09	A woman who has her first full term pregnancy after 30 years is at risk of developing breast cancer	Agree [ ] Don't know [ ] Disagree [ ]	3 2 1
10	Breastfeeding for more than one year reduces a woman's risk of developing breast cancer	Agree [ ] Don't know [ ] Disagree [ ]	3 2 1

11	Eating a lot of fatty foods may increase a woman's risk of developing breast cancer	Agree [ ] Don't know [ ] Disagree [ ]	3 2 1
12	Excessive alcohol intake increases ones risk of developing breast cancer	Agree [ ] Don't know [ ] Disagree [ ]	3 2 1
13	Hormone replacement therapy increases a woman's risk of developing breast cancer	Agree [ ] Don't know [ ] Disagree [ ]	3 2 1
14	Breast cancer may manifest as an un usual painless lump	Agree [ ] Don't know [ ] Disagree [ ]	3 2 1
15	A swelling in the axilla (armpit) may be a sign of breast cancer	Agree [ ] Don't know [ ] Disagree [ ]	3 2 1
16	Discoloration of the skin of the breast may suggest breast cancer	Agree [ ] Don't know [ ] Disagree [ ]	3 2 1
17	A dimple on the skin of the breast may suggest breast cancer	Agree [ ] Don't know [ ] Disagree [ ]	3 2 1
18	An unusual nipple discharge such as bloody nipple discharge may suggest breast cancer	Agree [ ] Don't know [ ] Disagree [ ]	3 2 1
19	Which methods of detecting breast cancer do you know? (Multiple responses accepted)	Clinical Breast exam [ ] Breast Self Exam [ ] Mammogram [ ] Ultrasound [ ]	1 2 3 4
SECTION C: BREAST CANCER SCREENING PRACTICES: Please tick only one of the options on the right for each statement given			
20	Which of the screening methods have you had in the last one year?	Clinical Breast exam [ ] Breast Self Exam [ ] Mammogram [ ] Ultrasound [ ] None [ ]	1 2 3 4 5
21	When last did you have the screening done? (skip if you have never been screened)	< 3 months [ ] 3 to 6 months [ ] 6 month to 1 year [ ] > 1 year [ ]	1 2 3 4
22	Have you ever counseled a client to have BC screening?	Yes [ ] No [ ]	1 2

23	Breast self examination procedure starts with:	Raising both hands [ ] Stand in front of a mirror [ ] Examining right breast with left finger pads [ ] Laying on a pillow [ ] Don't know [ ]	1 2 3 4 5
SECTION D: HEALTH BELIEFS: **Use the following scale to give one response to the following questions**			
Mammogram Self-Efficacy Scale (Champion, Skinner, & Menon, 2005)			
24	You can arrange transportation to get screened for breast cancer	Strongly agree [ ] Agree [ ] Don't know [ ] Disagree [ ] Strongly disagree [ ]	5 4 3 2 1
25	You can arrange other things in your life to have a breast cancer screening.	Strongly agree [ ] Agree [ ] Don't know [ ] Disagree [ ] Strongly disagree [ ]	5 4 3 2 1
26	You can talk to people at the screening center about your concerns	Strongly agree [ ] Agree [ ] Don't know [ ] Disagree [ ] Strongly disagree [ ]	5 4 3 2 1
27	You can get screened for breast cancer even if you are worried.	Strongly agree [ ] Agree [ ] Don't know [ ] Disagree [ ] Strongly disagree [ ]	5 4 3 2 1
28	You can find a way to pay for breast cancer screening	Strongly agree [ ] Agree [ ] Don't know [ ] Disagree [ ] Strongly disagree [ ]	5 4 3 2 1
29	You can make an appointment for breast cancer screening.	Strongly agree [ ] Agree [ ] Don't know [ ] Disagree [ ] Strongly disagree [ ]	5 4 3 2 1
30	You know for sure you can get breast cancer screening if you really want to.	Strongly agree [ ] Agree [ ] Don't know [ ] Disagree [ ] Strongly disagree [ ]	5 4 3 2 1

31	You know how to go about getting screened for breast cancer.	Strongly agree [ ] Agree [ ] Don't know [ ] Disagree [ ] Strongly disagree [ ]	5 4 3 2 1
32	You can find a place to have a breast cancer screening.	Strongly agree [ ] Agree [ ] Don't know [ ] Disagree [ ] Strongly disagree [ ]	5 4 3 2 1
Benefits Scale (Champion & Skinner, 2003)			
33	My family will benefit if I am screened for breast cancer.	Strongly agree [ ] Agree [ ] Don't know [ ] Disagree [ ] Strongly disagree [ ]	5 4 3 2 1
34	If I get screened for breast cancer and nothing is found, I do not worry as much about breast cancer.	Strongly agree [ ] Agree [ ] Don't know [ ] Disagree [ ] Strongly disagree [ ]	5 4 3 2 1
35	Getting screened for breast cancer will help me find lumps early	Strongly agree [ ] Agree [ ] Don't know [ ] Disagree [ ] Strongly disagree [ ]	5 4 3 2 1
36	If I find a lump through an annual breast cancer screening, my treatment for breast cancer may not be as bad.	Strongly agree [ ] Agree [ ] Don't know [ ] Disagree [ ] Strongly disagree [ ]	5 4 3 2 1
37	Getting screened for breast cancer is the best way to find a very small lump.	Strongly agree [ ] Agree [ ] Don't know [ ] Disagree [ ] Strongly disagree [ ]	5 4 3 2 1
38	Getting screened for breast cancer will decrease my chances of dying from breast cancer	Strongly agree [ ] Agree [ ] Don't know [ ] Disagree [ ] Strongly disagree [ ]	5 4 3 2 1

Barriers **scale** (Champion & Skinner, 2003)			
39	I am afraid to have breast cancer screening because I might find out something is wrong.	Strongly agree [ ] Agree [ ] Don't know [ ] Disagree [ ] Strongly disagree [ ]	5 4 3 2 1
40	I am afraid to have breast cancer screening because I don't understand what will be done.	Strongly agree [ ] Agree [ ] Don't know [ ] Disagree [ ] Strongly disagree [ ]	5 4 3 2 1
41	I don't know how to go about getting screened for breast cancer.	Strongly agree [ ] Agree [ ] Don't know [ ] Disagree [ ] Strongly disagree [ ]	5 4 3 2 1
42	Getting screened for breast cancer is too embarrassing.	Strongly agree [ ] Agree [ ] Don't know [ ] Disagree [ ] Strongly disagree [ ]	5 4 3 2 1
43	Getting screened for breast cancer takes too much time.	Strongly agree [ ] Agree [ ] Don't know [ ] Disagree [ ] Strongly disagree [ ]	5 4 3 2 1
44	People doing breast cancer screenings are rude to women	Strongly agree [ ] Agree [ ] Don't know [ ] Disagree [ ] Strongly disagree [ ]	5 4 3 2 1
45	Getting screened for breast cancer exposes me to unnecessary radiation.	Strongly agree [ ] Agree [ ] Don't know [ ] Disagree [ ] Strongly disagree [ ]	5 4 3 2 1
46	I cannot remember to schedule a breast cancer screening.	Strongly agree [ ] Agree [ ] Don't know [ ] Disagree [ ] Strongly disagree [ ]	5 4 3 2 1

47	I have other problems more important than getting screened for breast cancer.	Strongly agree [ ] Agree [ ] Don't know [ ] Disagree [ ] Strongly disagree [ ]	5 4 3 2 1
48	I am too old to need a routine breast cancer screening.	Strongly agree [ ] Agree [ ] Don't know [ ] Disagree [ ] Strongly disagree [ ]	5 4 3 2 1
49	Getting screened for breast cancer is too painful.	Strongly agree [ ] Agree [ ] Don't know [ ] Disagree [ ] Strongly disagree [ ]	5 4 3 2 1
Perceived Susceptibility (Champion & Skinner, 2003)			
45	It is likely that I will get breast cancer.	Strongly agree [ ] Agree [ ] Don't know [ ] Disagree [ ] Strongly disagree [ ]	5 4 3 2 1
51	My chances of getting breast cancer in the next few years are great.	Strongly agree [ ] Agree [ ] Don't know [ ] Disagree [ ] Strongly disagree [ ]	5 4 3 2 1
52	I feel I will get breast cancer sometime during my life.	Strongly agree [ ] Agree [ ] Don't know [ ] Disagree [ ] Strongly disagree [ ]	5 4 3 2 1

Thank you for your participation.

APPENDIX 4: Ethical Clearance

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GHANA HEALTH SERVICE ETHICS REVIEW COMMITTEE

In case of reply the number and date of this Letter should be quoted.

Research & Development Division
Ghana Health Service
P. O. Box MB 190
Accra
GPS Address: GA-050-3303
Tel: +233-302-681109
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Email: ghserc@gmail.com

MyRef. GHS/RDD/ERC/Admin/App 19/127
Your Ref. No.

6th May, 2019

Aba Amoasiwah Ghansah
University of Ghana
School of Public Health
Legon

The Ghana Health Service Ethics Review Committee has reviewed and given approval for the implementation of your Study Protocol.

GHS-ERC Number	**GHS-ERC 018/04/19**
Project Title	Factors Influencing Breast Cancer Screening among Female Clinicians at the Ga West and Ga South Municipal Hospitals in Accra
Approval Date	6th May, 2019
Expiry Date	5th May, 2020
GHS-ERC Decision	**Approved**

This approval requires the following from the Principal Investigator

- Submission of yearly progress report of the study to the Ethics Review Committee (ERC)
- Renewal of ethical approval if the study lasts for more than 12 months,
- Reporting of all serious adverse events related to this study to the ERC within three days verbally and seven days in writing.
- Submission of a final report after completion of the study
- Informing ERC if study cannot be implemented or is discontinued and reasons why
- Informing the ERC and your sponsor (where applicable) before any publication of the research findings.
- Please note that any modification of the study without ERC approval of the amendment is invalid.

The ERC may observe or cause to be observed procedures and records of the study during and after implementation.

Kindly quote the protocol identification number in all future correspondence in relation to this approved protocol

SIGNED.....
DR. CYNTHIA BANNERMAN
(GHS-ERC CHAIRPERSON)