

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

COLLEGE OF HEALTH SCIENCES

SCHOOL OF PUBLIC HEALTH

**DEPARTMENT OF HEALTH PROMOTION, EDUCATION
AND DISABILITY STUDIES**

BY

YEBOAH BEATRICE MRS.

**KNOWLEDGE, ATTITUDE AND PRACTICES TOWARDS BREAST CANCER
AND ITS PREVENTION AMONG FEMALES IN SOME SELECTED SENIOR HIGH
SCHOOLS WITHIN THE KUMASI METROPOLIS, GHANA.**

NOVEMBER, 2019

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**A THESIS SUBMITTED TO THE DEPARTMENT OF HEALTH PROMOTION,
EDUCATION AND DISABILITY STUDIES, SCHOOL OF PUBLIC HEALTH,
COLLEGE OF HEALTH SCIENCES, IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR THE AWARD OF DEGREE OF MASTER OF PUBLIC
HEALTH IN HEALTH PROMOTION AND EDUCATION**

NOVEMBER, 2019

DECLARATION

I, Beatrice Yeboah, hereby declare that this thesis is my own work produced under supervision except for other people's work that have been utilized, which have been duly acknowledged in the text and the reference section. I affirm that neither the whole nor part of this thesis/dissertation have been presented in any form for any degree or diploma to any other institution of tertiary education.

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DEDICATION

This thesis is dedicated to my husband, Mr. Kofi Kwakye Mensah and my son Paapa Kofi Owusu Mensah for their unflinching love, support, encouragement and prayers in the pursuit of my academics. I also dedicate it to my parents, Nana Kusi Asiamah Yeboah (Ahwiaahene) and Mrs Florence Somuah Yeboah, for the encouragement and also standing in for me throughout all the days I was away from home because of academics.



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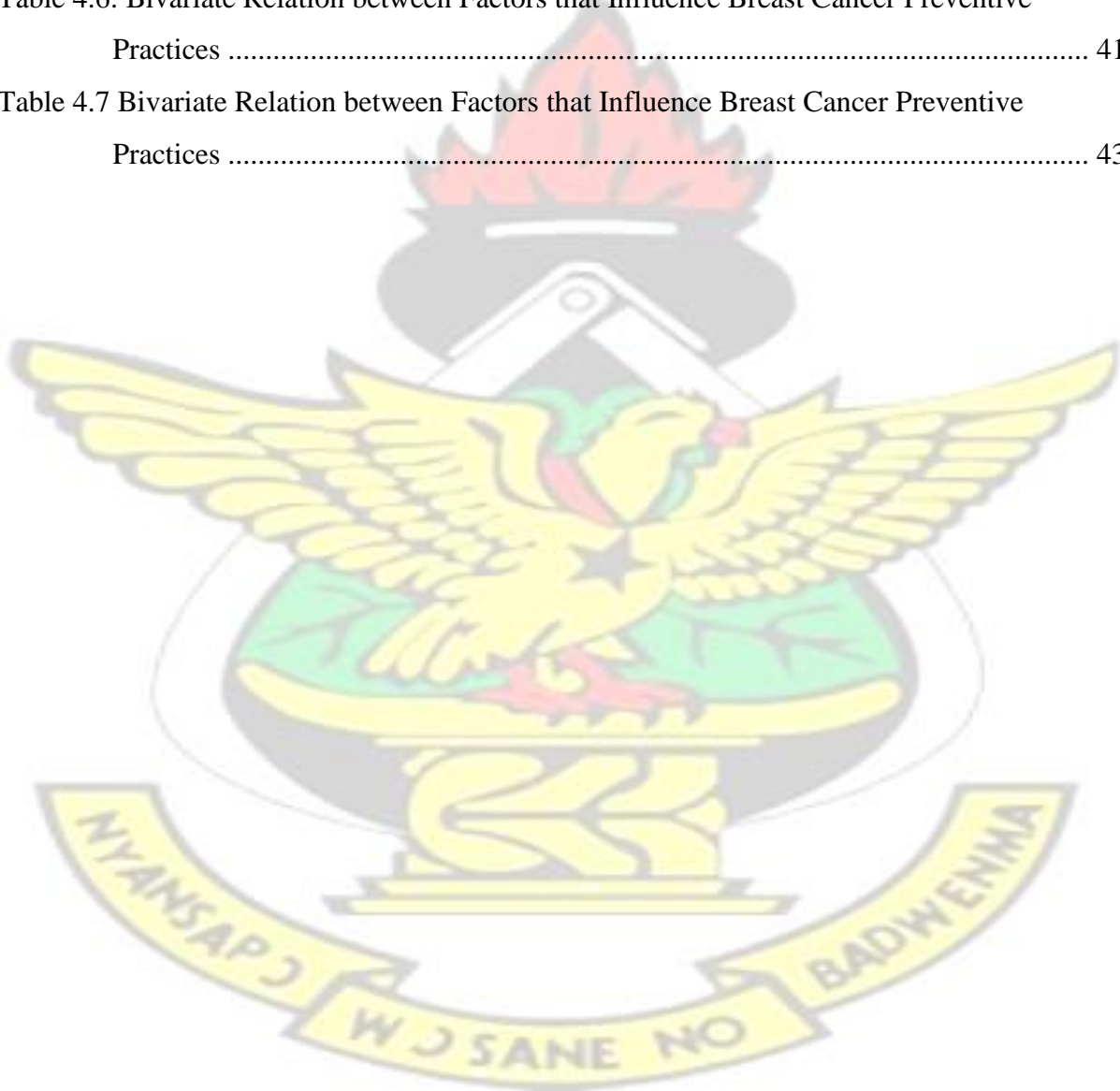
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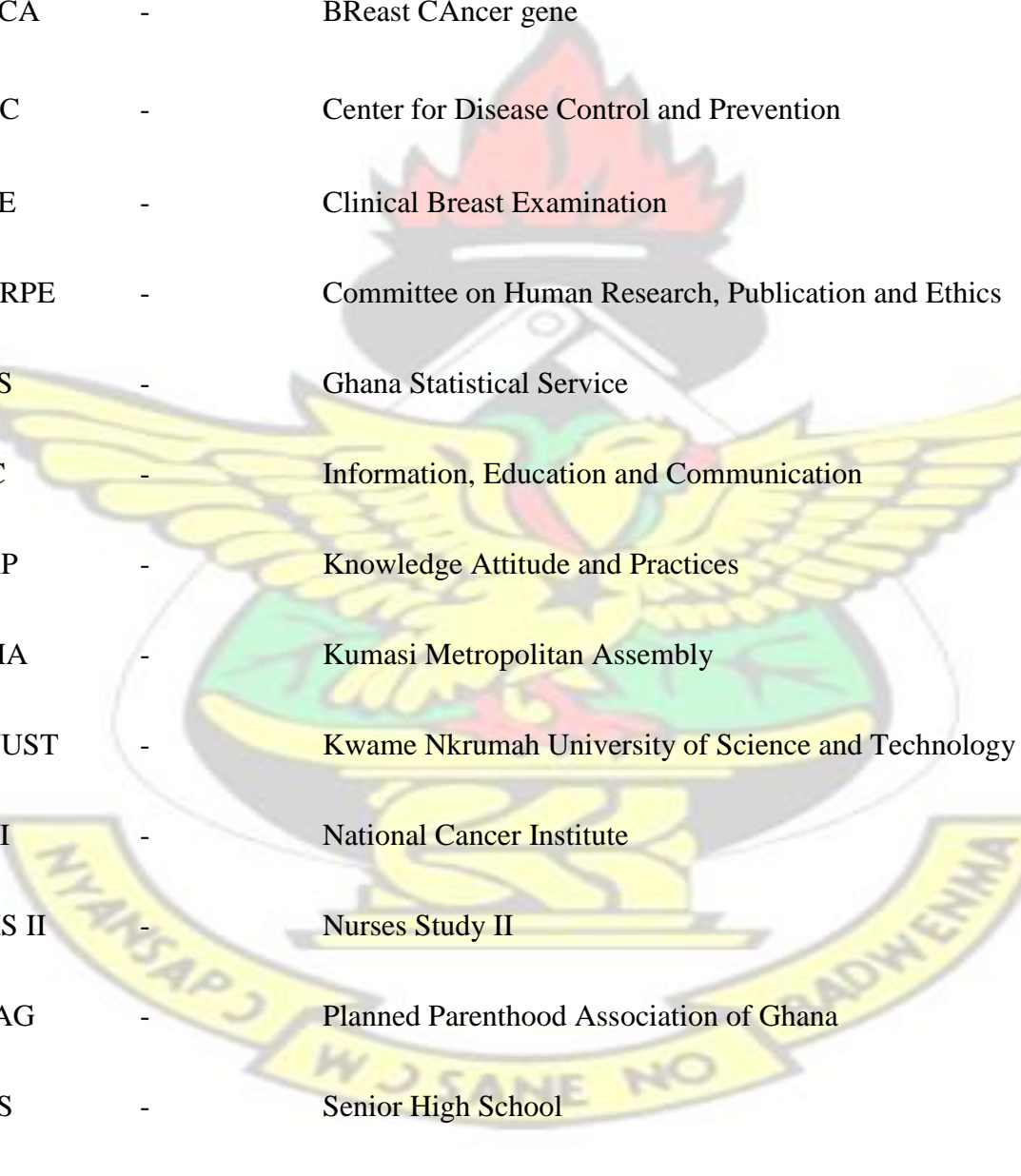


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LIST OF ACRONYMS/ABBREVIATIONS



ACS	-	American Cancer Society
BBD	-	Benign Breast Disease
BSE	-	Breast Self-Examination
BCT	-	Breast Conserving Surgery
BRCA	-	BRest CAncer gene
CDC	-	Center for Disease Control and Prevention
CBE	-	Clinical Breast Examination
CHRPE	-	Committee on Human Research, Publication and Ethics
GSS	-	Ghana Statistical Service
IEC	-	Information, Education and Communication
KAP	-	Knowledge Attitude and Practices
KMA	-	Kumasi Metropolitan Assembly
KNUST	-	Kwame Nkrumah University of Science and Technology
NCI	-	National Cancer Institute
NHS II	-	Nurses Study II
PPAG	-	Planned Parenthood Association of Ghana
SHS	-	Senior High School
UNFPA	-	United Nations Population Fund
WHO	-	World Health Organization

DEFINITION OF TERMS

1. **Knowledge** – Information or skill acquired through experience or education; the sum of what is known; true, justified belief as opposed to opinion and awareness or familiarity gained by experience.
2. **Attitude** – Attitude refers to a person's negative or positive evaluation of self-performance of a particular behavior.
3. **Practices** – Practice refers to something that is usually or regularly done, often as a habit, tradition, or custom.
4. **Screening** – Screening refers to a medical test or series of tests used to detect or predict the presence of disease in individuals at risk for disease within a defined group, such as a population, family, or workforce.
5. **Signs** –Visible indications which is an indication of a disease detectable by a medical practitioner even if not apparent to the patient
6. **Symptoms** –Features which indicate a condition of a disease, in particular one apparent to the patient.
7. **Early Signs and Symptoms** – In relation to Breast Cancer therefore reflect the usual indications that create the awareness of the emergence of the disease.

ABSTRACT

Breast cancer is the most common type of cancer in women throughout the world and also a public health concern. However, comparing with Western women, it presents rather early in women of Asian race. Family history of breast cancer, exposure to radiation, age, late menopause Early menarche, are well-known risk factors for the development of breast cancer in women. Detecting the disease early through preventive methods such as breast selfexamination (BSE) and breast cancer screening programs can lead to a reduction in the mortality rates due to breast cancer. The study aimed to assess the knowledge, attitude, and practices towards breast cancer and early detection measures among female students in some selected senior high schools within the Kumasi Metropolis. A cross-sectional study was conducted among female senior high school students within the Kumasi Metropolis. The tool used for data collection was a structured self-administered questionnaire and data was analyzed using STATA v 14 using a self-administered questionnaire. The study was conducted from May 2019 to August 2019. A total of three hundred and five students participated in the study with the age range from 16-21years (mean age =16.9). A greater percentage of the respondents 302 (99.0%) had general knowledge about breast cancer. The majority of the students 71.8% and 79.5% knew about clinical Examination and Breast selfexamination respectively but only 38.7% ever practiced any of the early detection methods. Family history and knowing one can be screened for breast cancer were significantly associated (p -value=0.33 and 0.13) with the practice of the early detection methods according to the regression and bivariate results. Respondents also had a positive attitude towards breast cancer and early detection methods. In conclusion, there is an inadequate practice of the early detection methods among the respondents even though, most of them knew about breast cancer early detection methods. From the findings of the study, Ghana Education Service need to provide continuous educational programs to strengthen the knowledge level on breast cancer and its early detection methods which in turn will have a positive effect on students to motivate them to engage in cost-effective early detection methods.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Globally, cancers that affect the breast have been adjudged as one of the commonest cancers in women and it is a public health concern worldwide. Breast cancer is the topmost cancer in women in the advanced and emerging world (WHO, 2019). It accounts for 16% of all cancers and the condition is more common in females more than males (WHO, 2019). Cancer deaths are mainly the cause of mortality of women worldwide, accounting for 425,000 deaths in 2010 (Forouzanfar *et al*, 2011). In 2012, close to 1.7 million new breast cancer cases were diagnosed worldwide representing about 12% of all new cancers and 25% of all cancers in women (Jacques Ferlay *et al.*, 2015). According to Fregene and Newman (2005), women in Africa despite having low percentage of malignancy strangely bear a high cancer death rate. Universally, breast cancer burden is foreseen to surpass 2 million by the year 2030, with proportions mounting from countries that are developing (Jemal *et al*, 2011; Globocan 2012). Currently, cancer statistics globally shows rising incidence of breast cancer and the upsurge is happening at a faster rate in populations of developing countries that previously experienced low incidence of the disease, where the projected breast cancer incidence relative to the total cancers in both genders was about 11.9% (Giordano *et al.*, 2004 ; Jemal *et al.*, 2011). A study looking at the pattern of breast cancer distribution in Ghana indicated that close to about 70% of women identified with cancer in Ghana are in advanced stages of the disease particularly due to low awareness which at the end of the day results in minimal treatment successes and high mortality rate (Ghartey Jnr *et al.*, 2016). Deficiency in knowledge may be the possible reason for late presentation with the advanced stage of the condition (Ferlay *et al.*, 2015). The low survival rates in less developed countries can principally be attributed to the unavailability of early detection programs, the appropriate diagnostic as well as therapeutic equipment, and the consequences are large percentages of females with late-stage disease (Isara

and Ojedokun, 2011). To date, there has been no known cause of breast cancer but the most likely are changes in the genetic make-up of cells which mostly results from lifestyle although age and other factors also play a part (American Cancer Society, 2017). The best way for improving outcomes of treatment, therefore, is detecting the disease from its onset and there is no possible and easy way except by frequent, timely, convenient and accessible practices and this is essential in health care delivery. Detecting the disease early coupled with swift medical intervention is the best way to prevent the worsening of earlystage disease. WHO have outlined two main mechanisms of early detection of breast: cancer education to which targets screening and diagnosis (WHO, 2019). Imperative changes take place during the transition period between childhood to adulthood; known as Adolescence.

—Women Know when something is wrong with their breasts but they need to know what they should do when they find outl, (Professor Clegg-Lamptey Consultant Surgeon, Korle Bu Teaching Hospital). These groups of women are at the initial stages of development and witnessing some parts of their bodies transform and in developing countries where domestic screening programs are not correctly developed, females can be educated on the breast and its issues produced using less costly methods of detection like BSE whipping. BSE is perceived as another choice for women within the age range of 20 and young girls particularly from the developing world. The advantages and also disadvantages of BSE should be highlighted, which will be beneficial if done earlier (Isara and Ojedokun, 2011). The results of a study suggested that the age for breast cancer screening programs should be adjusted to the early '20s for Ghanaian women (Naku et al., 2016). Also, a study which was conducted among 300 second cycle students in Nigeria reported that a greater proportion of the students (56.8%) had poor breast cancer knowledge and 27.6% also on BSE (Isara and Ojedokun, 2011). Focusing on the youth will help in the reduction of the incidence of the late report of the disease (Graphic Online, 2016). In Ghana, the occurrence of breast cancer among younger females has increased (Ghanaweb, 2015). According to Professor Joe-Nat Clegg-Lamptey, a consultant

surgeon at the Korle-Bu Teaching Hospital, more cancer cases among females in their '30s and 25's are presenting at the facilities at the very late stages when cost involved in management is very high (Ghanaweb, 2015). Though studies have targeted adolescent and breast screening in other parts of the world it is not the case in Ghana. Notwithstanding, there have been many promising programs embarked on by many prominent institutions such as the Breast Care International Ghana (BCIG) in collaboration with DHL Global Forwarding (Graphic Online, 2016) as well the UNFPA (United Nation Populations Fund) together with PPAG (Planned Parenthood Association of Ghana) with the aim of promoting early breast cancer detection for better prognostic results, few of these programs have targeted the young adolescent girl student. In bridging this gap, the current research aims at assessing the knowledge, attitude and practices related to the health condition and its risk factors, screening method, and the sources of information among females within some Second Cycle Schools within the Kumasi Metropolis, Ashanti Region, Ghana.

1.2 Problem statement

Breast cancer presents a very daunting health hazard to the entire world population. Taking the youth through an intensive training about the disease though challenging, will yield positive results in the health of women now and the future generations (Gürsoy *et al.*, 2009; Yılmaz *et al.*, 2009). Several studies have shown that the late presentation of breast cancer results in poor management and mortality (Boder *et al.*, 201; Rambau *et al.*, 2011). Yet very few studies have been done on breast cancer targeting the adolescent in the second cycle institutions. Deficiency in knowledge about the condition and its risk factors can lead to erroneous perceptions about the disease as well as a lack of utilization of the identified techniques for early detection. Low levels of knowledge and a lack of perceived risk together with the flooding of breast cancer information that focuses on older women underpins the belief that young women should not be concerned about breast cancer because they are not at risk (Johnson *et al.*, 2008). Young people need to be informed about BSE to develop behaviors and practices which can inspire

them to become proactive in taking or being in charge of their health issues, in this case, breast health (Gürsoy *et al.*, 2009). In Ghana, it has been reported that presenting the disease at a later stage is detected to be a key feature of females with breast cancer which more than 60% visit the health facilities with advanced phase of the disease (Opoku *et al.*, 2012). This might be because of inadequate knowledge level among females and the youth as well. It is very important to make sure that facilities that provide screening services are easily accessible by the youth. This will help encourage breast screening at a very early age as early detection is very critical and a highly recommended approach to efficient management and solution to this public health problem.

The attainment of the above-mentioned goals of the study would enhance the understanding of breast cancer among the youth which will go a long way to improve and encourage early detection of breast diseases by encouraging breast self-examinations as frequently as possible.

The study also seeks to bridge the gap between been familiar with the health condition and the breast self-examination practices among females in the second cycle schools.

1.3 Justification

Breast cancer remains a key public health issue and the principal cause of illness and death in females worldwide. Over 1.5million breast cancer cases are identified universally every year (WHO, 2013). To achieve the best management results and survival, early detection remains the ideal standard (WHO, 2019). Early detection of breast cancer results in better management in a cost effective way (Galukande, 2010).

Adolescent is the stage where the female child starts experiencing physical developmental of secondary sex characteristics such as the breast. These group of females are just beginning to know their bodies and are being exposed to risk factors (apart from family history and genetic factors) such as alcohol, tobacco, obesity and late age at first birth because of education and

late marriages. Although studies have shown that frequent breast self-examinations do not necessarily reduce the risk of acquiring the disease (McCready *et al.*, 2005), making sure that the youth as early as in their adolescent stages become aware of their breast, both the appearance and feel, will enhance early detection of any changes and report them to their health caregivers.

Educating these females on diseases that can affect the breast, in this case breast cancer, and on cheap early detection methods such as breast self-examination (BSE), will lead to early detection and diagnosis for better management results.

Likewise there are higher chances of the regular practice of BSE in the future if females are exposed to enough information and knowledge about BSE at an early age (Isara and Ojedokun, 2011). Ample breast cancer awareness and screening practices through health education activities and early screening programs will enhance behavior modification and also help avoid the presentation of breast cancer at a later stage and the practice of poor preventive measures in a developing country like Ghana.

This research therefore aims to add to the current literature on early detection of breast cancer through early screening practices. The results of the research are expected to determine the knowledge of breast cancer among females in second cycle schools and also their practices of the various preventive methods. Explicitly, the study will be significant in clarifying the factors that influences the practices of the various preventive methods among the students.

The severity of the problem associated with the condition will also be highlighted thereby raising awareness on the need for the intensification of education and awareness programs.

1.4 Research Question

- i. What is female Senior High School students' knowledge on breast cancer, its risk

factors, and preventive methods?

- ii. What is the attitude of female students towards breast cancer preventive methods? iii.

What are the practices of female students towards breast cancer?

1.5 Study Objectives

1.5.1 General Objective

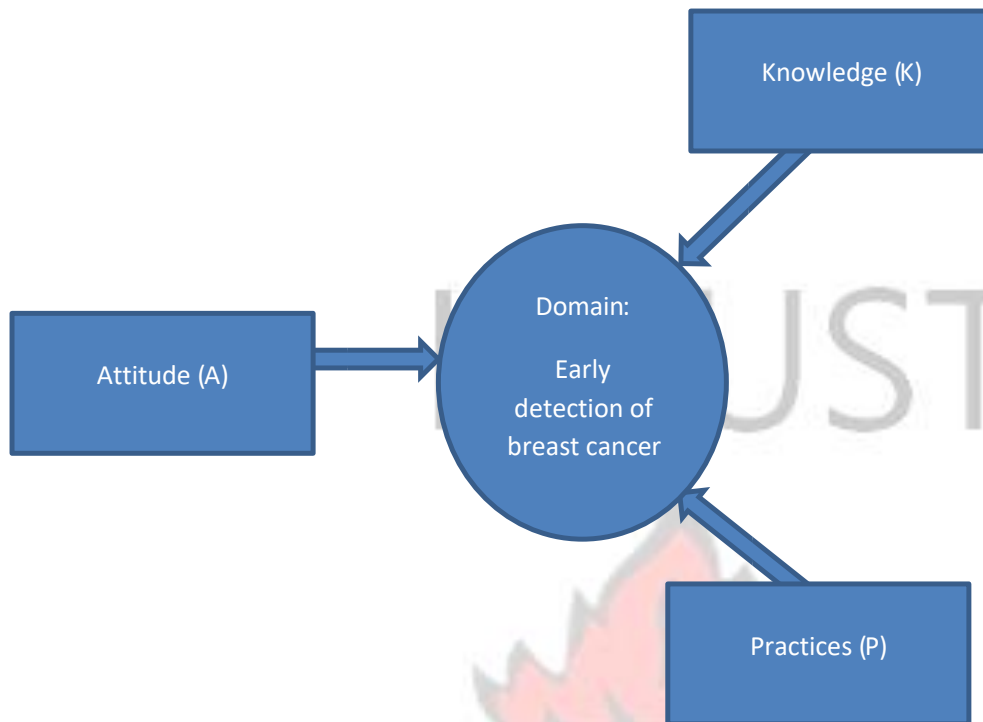
To determine the knowledge, attitude and practices of female students towards breast cancer and its prevention methods in some selected senior high schools in the Kumasi Metropolis.

1.5.2 Specific Objectives

1. To ascertain the knowledge of breast cancer among senior high school students.
2. To assess the attitude of female senior high school students to preventive methods of breast cancer
3. To determine the factors that influence practice of breast cancer preventive methods.

1.6. Conceptual Framework

The conceptual framework is significant in that, it gives a clear understanding of the feature of breast cancer early detection and the factors that influence early detection. The conceptual framework for the above study was based on Knowledge, Attitude, and Practices (KAP). The knowledge of person on breast cancer, assessment of the positive and negative view on selfexamination as well as the practices towards breast cancer influence early detection of the disease, therefore, enhancing better management.



s (2019)

Source: Author's Construct

1.6.1 Knowledge on Breast Cancer and Breast Screening

Studies by Ibrahim and Oludara (2012) and Okobia1 *et al.* (2006) revealed that there is the tendency of regular breast screening practices if the knowledge on breast cancer screening methods is adequate. Knowledge is defined as a skill assimilated by experience or education; the summation of what is known; true, justified belief as opposed to opinion and awareness or familiarity gained by experience (Merikle, 1984). For this variable concerning Breast Cancer Screening, the Researcher is interested in the awareness of respondents. Awareness is thus explained as a state of having knowledge or perception of a situation (Merikle, 1984). Signs are hints that are visible and in medicine, it is explained as an indication of a disease and can be noticed by a health practitioner even if not visible to the patient (Concise Oxford Dictionary). Symptoms in medicine are features that show a state of a disease, in particular, one that is visible to the patient (Concise Oxford Dictionary). Breast cancer early signs and symptoms concerning Breast Cancer, therefore, reflect the usual hints there is a development of the

disease. For example, this will help to establish participants' knowledge of the conditions of the nipple, lump in the breast and its connection with Breast Cancer.

1.6. Practices of preventive methods

Presently, Mammography, Clinical breast examination, and Breast Self-examination are the screening method options used for early detection of breast cancer. Mammography notwithstanding is very expensive and comprises extensive financial and personnel in its process. According to a study conducted by Opoku (2012) and others, resorting to mammography for early detection is not practicable now for emerging countries like Ghana.

Breast self-examination, on the other hand, is cheap and unlike Mammography which indisputably is the best diagnostic tool in the detection of breast cancer, it does not comprise extensive financial cost and therefore best appropriate technique for early detection of breast cancer for most developing countries like Ghana. Breast self-examination plays a vital role in the early detection of breast cancer and this has been reported in several studies (Ali *et al.*, 2007; Kern KA *et al.*, 1994; Cavdar *et al.*, 2007). Although the procedure is simple, cheap, non-invasive and non-consuming as far as time is concerned, it has to be practiced the right way in order to achieve good results. Young people including adolescents, need to be educated well about breast self-examination (BSE) and how to regularly practice it.

Palpable masses, nipple discharges, and inflammatory lesions are mostly the early signs of breast diseases (Makki, 2015). Since there is inadequate information on breast cancer and the preventive methods available, majority of women present the disease at a late stage (Ceber *et al.*, 2006). There are cases of the breast cancers that do not present with lumps but the majority of the cases present with painless lump as first sign. Women have to be breast-aware by means of education and regular screening practices so as to enable them report to the health facility early which will result in better management. Developing countries cannot depend on routine

mammography because of economic limitations and the nonexistence of precise statistics on breast cancer burden.

1.7 Scope of the Study

Geographically, the research was conducted within the Kumasi metropolis, the Ashanti Region of Ghana. In this regard, the study focused on analyzing the knowledge of breast cancer and practices as well as the attitudes of students in some selected high schools in the Kumasi metropolis.

1.8 Structure

The thesis is organized into six chapters. Chapter one is the introduction describing the background of the study, the problem statement, justification, research questions, main objective, specific objectives, and conceptual framework underpinning the study. Chapter two follows with the literature review which reviews related literature in line with the thesis objectives.

Chapter three entails the methodology. In this chapter, the methods used in collecting the data for the study are discussed. The study area, research design, target population, sampling strategy and recruitment, data collection strategy, data analysis, ethical clearance, inclusion and exclusion criteria, study variables (dependent and independent variables), limitations as well as assumptions are spelled out. Chapter four entails the presentation and analysis of results whereas chapter five discusses the results. Discussed in chapter six include the conclusion and recommendations of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

This section reviews appropriate literature on breast cancer, adolescent's knowledge about breast cancer and breast cancer screening among women and adolescents. Reviewing of literature is a present understanding of scholarly paper including substantive results, as well as theoretical and methodological contributions to a specific subject (Wikipedia, 2019). According to Marshall and Rossman (2006), a literature review is a thorough and logical debate of associated literature that contributes to the growth of a logical framework for research, thus placing literature review within a tradition of investigation and associated studies context. The reviewed literature in this chapter will help develop a theoretical foundation that will help solve the questions of this study and goals described in the first section of this research.

2.2 Review of Breast Cancer

Most often, cancers that are popular amongst females is the cancer of the breast. It has also been reported as the second largest principal cause of cancer death in women after lung cancer (WHO, 2019). Breast cancer is an ailment that triggers when cells in breast tissue mutate and keep reproducing invading into other cells (NCI, 2014). Usually, cancer that affect the breast begin from the glands that produces milk which is also known as lobules or the tube -shaped duct that convey milk from these lobules to the nipple. Sometimes, cancer is likely to start from the fatty and fibrous connective tissue of the breast (CDC, 2018).

Having basic knowledge about the anatomy of the normal structure of the breast helps to understand breast cancer. The breast of the female comprise mainly ducts, lobules, and stroma. The cells that line the ducts normally are the genesis of most breast cancers (ductal carcinomas). Others also start from the cells lining the lobules while some begin from other tissues (ACS, 2015). Cell which begin to misbehave usually cling to others to form a tumor. A tumor is invasive when these cells which are misbehaving take dominate other parts of the breast spreading to other parts of the lymphatic system to other parts of the body (ACS, 2015).

2.3 Breast Cancer incidence

Breast cancer is the principal cause of death in women worldwide (Junaibi *et al.*, 2011; Amosu *et al.*, 2011; Yilmaz *et al.*, 2013). More than 1.15 million women all over the world are diagnosed with breast cancer while more than half a million die from this disease (Junaibi *et al.*, 2011). It relates to cancer that originates from breast tissue, generally from the internal lining of milk ducts or from the lobules that supply milk to the ducts (Amosu *et al.*, 2011). Ductal carcinomas are cancers that evolve from the ducts and those that develop from the lobules are normally referred to as lobular carcinomas (Amosu *et al.*, 2011). Late detection and late diagnosis of breast cancer are the key explanations for the rise in mortalities owing to breast cancer (Junaibi *et al.*, 2011). Late presentation of the disease is the general source of the numerous admissions in hospital and death amid Ghanaian women according to a study by Ohene-Yeboah & Adjei, 2012. It contributes to approximately 15.4% of all malignancies in Ghana and it is projected that there will be an increase in the number (Hodasi, 2007). Breast cancer affects both men and women, but it impacts mostly on women. In Kumasi, females account for about 70% of breast cancer and their average diagnostic age is 53 (Laryea *et al.*, 2014). Before the age of 30 cancer that affects the breast is not common, but after this age, its incidence begins to rise and after menopause, there is an overwhelming surge (Newman, 2005). The incidence of breast cancer in West African females is between 35 and 45 years than in Western countries, this is 10-15 years earlier than that for western countries (Newman, 2005). The incidence of breast cancer is highest in Northern Europe and North America, the lowest in Asia and Africa, intermediate in Mediterranean countries and South America (Parsa *et al.*, 2006). When it comes to development of breast cancer women who are light skinned are to some extent more likely to develop the disease unlike the Asian, Hispanics, and African American. Most of the females at a younger age in Africa develop more destructive breast cancers (Desantis *et al.*, 2016). While breast cancer is frequently seen in developed countries, developing nations have greater mortality rates than advanced ones

(Yilmaz *et al.*, 2013). Scientific studies conducted in Africa indicates that cancer which affects cancer of the breast is generally serious in indigenous black African communities and is generally unfavorable (Gukas *et al.*, 2005; Ohene-Yeboah *et al.*, 2012). Some characteristics, as recognized by these studies, could account for elevated mortality from breast cancer in indigenous black African females compared to females from other areas of the globe; some of the characteristics were: presentation at young age, sophisticated diagnostic phase of disease, big tumor size, elevated histological subtypes and low hormone receptor positivity (Gukas *et al.*, 2005; Hodasi *et al.*, 2007). Studies have attributed the aggressive and unfavorable nature of the disease in females as they report late in Africa, primarily to the fact that there is a lack of understanding of the disease and absence of easily accessible screening techniques (Awadelkarim *et al.*, 2008; Huo *et al.*, 2008). An estimated 60 percent of patients with breast cancer in Ghana, report late-phase of the illness (stage 3 and 4) and generally report 8 to 10 days after symptoms develop (Hodasi, 2007; CleggLampsey *et al.*, 2009). Edmond *et al.* (2013) found that patients still had big clinically and histologically advanced invasive cancers more than three decades after the first publication of breast cancer in Ghanaian females. The findings of Clegg-Lampsey *et al.* (2009)'s research revealed that the causes of delayed presentation were past medical consultations, ignorance, and fear of mastectomy, herbal therapy, prayer or prayer camps, and economic incapacity.

2.4 Factors Associated with Breast Cancer

The female gender is a significant risk factor (particularly after 40 years) connected with breast cancer. Breast cancer develops more often in women than in men and growing age.

Aging is strongly a risk factor for breast cancer (CDC, 2014). Among women diagnosed with breast cancer each year, about 77% are over age 50, and nearly 50% are age 65 and above years (Siegel *et al.*, 2017). Breast cancer has also been discovered to be associated with circumstances that boost estrogen levels, particularly estradiol levels, including early menarche, late menopause, postmenopausal female obesity (Amosu *et al.*, 2011). Alcohol consumption

increases a person's risk of breast cancer. Studies also bring out the assumption that women who drink two or more alcoholic beverages a day are more likely to develop breast cancer than non-alcoholics (Sasco et al., 2003; Hamajima et al., 2002). The risk of getting breast cancer increases with a greater intake of alcohol, and alcohol is known to increase the risk of other cancers too. For this reason, the American Cancer Society (ACS) suggests that women at most take one drink a day or less (American Cancer Society, 2017). Currently, a study has revealed that exposure to tobacco smoke might increase a person's risk of breast cancer. Second-hand smoke (passive smoking), has been also found to somewhat increase breast cancer risk and research suggests that a teenager who engages in smoking can also increase their risk as women and also post-menopause (Marcus et al., 2000). Oral contraceptives and hormonal therapy, nutritional iodine deficiency, high-fat diet obesity, family history of breast cancer and environmental variables such as tobacco use, radiation and shift work are other factors that increase the risk of breast cancer. (Amosu et al., 2011). Females who menstruate early (usually earlier than 12) and those who do not reach menopause early (after age 55) have a greater chance of developing breast cancer. Experts in the field of science believe that been exposed to the female hormone might have an influence, due to estrogen stimulating the development of cells of the breast growth (Kamińska et al., 2015). Alterations in certain genes (BRCA1 and BRCA2 changes) have been linked with amplified risk of getting breast cancer (Amosu et al., 2011). Research by Badoe and Baako (2008) also found that a woman whose first-grade female relative has breast cancer is twice as probable as other females to develop breast cancer. Moreover, a female who has cancer in a breast is at risk of the condition in the other breast. The following variables, however, appear to reduce the danger; childbearing (particularly early birth and a greater amount of births), breastfeeding and physical activity (Amosu et al., 2011). Breastfeeding has been shown to cause a slight decrease in the danger of females developing breast cancer, particularly if it takes 18 months to 24 months(Huo et al., 2008). There are elevated serum prolactin levels during breastfeeding which lead to suppression of ovulation

and menstruation, resulting in comparatively reduced estrogen concentrations during this era. (Badoe and Baako, 2008). Studies have suggested that exercise can provide lifelong protection against breast cancer during adolescence, but exercising during adulthood can also reduce the danger of breast cancer (Reigle, *et al.*, 2009; Kwawu, 2010).

2.5 Clinical Features, Diagnosis, Management and Prognosis of Breast Cancer

The first identified breast cancer symptom is usually a lump in the breast that feels different from the other breast. This is recorded in more than 80% of females with the condition diagnoses (Amosu *et al.*, 2011). It must be emphasized however that signs and symptoms of breast cancer are not the same for every woman due to differences in genes and body makeup (Komen, 2015). Usually, these lumps are painless and most often in the upper outer quadrant of the breast (Badoe and Baako, 2008). Most cancers are painless; however, other symptoms of breast cancer may be breast pain. In research by Clegg-Lampsey et al (2007 at a Teaching Hospital in Accra disclosed that of the 447 patients who had breast pain; Breast cancer was discovered to be the only symptom in 1.24% of those with breast pain. Cancer cells, particularly the axillary lymph nodes, can spread through the lymph vessel into the lymph nodes that supply the breast and cause them to become palpable during an examination. Other clinical characteristics of breast disease include changes in breast size or shape, skin dimpling (tethering), nipple reversal, the skin of the impacted breast resembling orange (peau d'orange) or spontaneous single-nipple release (Badoe and Baako, 2008).

A study conducted in Komfo Anokye Teaching Hospital by Ohene – Yeboah & Adjei (2012) revealed that 25% of women presenting with a complaint of bloody nipple discharge were eventually diagnosed with breast cancer. It may spread to other organs when the disease is developed, particularly the lungs and bone and cough, or breathing or bone pain and fractures, respectively (Badoe and Baako, 2008). Some forms of breast cancer present clinicians with important diagnostic challenges; they are inflammatory breast disease and Paget's breast

disease. The clinical characteristics of inflammatory breast disease are similar to mastitis (a benign breast condition) and can be readily diagnosed as such. These symptoms are a pain, inflammation, downturn of the nipple, redness and warmth of the breast (Badoe and Baako, 2008; Amosu *et al.*, 2011).

Paget's breast disease appears as eczema-like modifications in the skin, including redness and mild flaking of the peel. Symptoms such as tingling, itching, enhanced sensitivity, burning, and pain may grow as the disease advances. It can also be linked with nipple discharge and discharge from the nipple and a swelling in the breast (Badoe and Baako, 2008; Amosu *et al.*, 2011).

Breast self-examination (BSE), clinical breast examination (CBE), screen-film mammography, digital mammography, magnetic resonance imaging, and ultrasound can all be used to identify cancers before a biopsy is used to confirm breast tissue histopathology. (Clegg-Lampthey *et al.*, 2009).

Modalities of treatment include surgery, drugs (hormonal and chemotherapy therapy) and radiation. The prognosis and rate of survival vary significantly based on the type of cancer and the phase of the disease; Accordingly, with the best therapy and depending on the phase of the illness, 10-year disease-free survival ranges from 98% to 10% ; however, 5-year survival in sub-Saharan Africa is less than 10% compared to over 70% in Western Europe and North America. (Amosu *et al.*, 2011).

2.6 Breast cancer and its knowledge in developing countries-Africa

Estimations made by Globacan in 2012 indicated that the rate of breast cancer in Africa was 133,890 from which 63,160 ended up in deaths of most women Breast cancer cases among females noted in 2008 were 23.5 percent per hundred thousand cases and among these females were women with ages 15years and over and about 35,427 ended up as mortality cases (Bi Suh

et al., 2012). Breast cancer mortality rates, therefore, for African women, are now higher compared to women in Western countries (Kamangar *et al.*, 2006). In developing countries especially where hitherto had lower new cases as well as low rates of death resulting from breast cancer have experienced demographic changes (Nc *et al.*, 2013). The farming activities which most women in Africa were formally engaged in made them active and therefore cases of breast cancer were rare. Most African women are now inactive because of the various sedentary (Office) jobs. (Key T.J *et al.*, 2001). The mortality rates associated with cancer of the breast in Africa has heightened. (Stark A *et al.*, 2010) and developing countries therefore do not enjoy lower incidence of breast cancer cases (Nc *et al.*, 2013).

The younger population are now experiencing breast diseases such as Breast cancer in Gulf and East region as compared to the west (Radi, 2013). Diagnosis of breast cancer amid females in Africa America are becoming common than previously (Stark A *et al.*, 2010).

Breast cancer in Ghana, is affecting females of the as young as 20 comparing to America and Europe (Hodasi, 2007). In Ghana, breast cancer leads all diseases that are malignant accounting for a 15.4 percent of all cancer cases.

In Europe, women are more probable to present when the disease is still in its early stages (Grosclaude *et al.*, 2001). In the United Kingdom, the average age at which black women present breast cancer is parallel to African women which is at 46 years. This is lower comparing to 67 years in white British women (Opeyemi *et al.*, 2012). Because many breast cancer cases are noticed promptly in Europe, many of the women are presented with the best management options well have wide local excision also termed as breast-conserving (BCS) (Opeyemi *et al.*, 2012). The number of tumors spotted for instance, in Poland, the at their earliest stages moved from 57% in 1984 to 81% in 2003(Marek *et al.*, 2007).

In Africa however, most women seek for medical attention when the disease has already progressed. A study conducted in the Eastern part of Africa revealed that more than 70% of

the patients visited health facilities with the disease at phase 3 or 4 (Rambau *et al.*, 2011). Also, a research conducted in Nigeria showed that as high as 39% of the patients had fungating tumors while 13% had clinical indications of complete metastasis (Adesunkanni *et al.*, 2006).

From Uganda, Gakwaya and his colleagues reported that the maximum age of the breast cancer patients that they reviewed was as low as 30-39 years (Adjei, 2012). In contrast, only 52% of the patients in Africa present with tumor sizes below 6 cm (Rambau *et al.*, 2011). Most African women are therefore left with no other option but to go for more invasive procedures and treatments while many others because the cancer has metastasized, receive palliative care (Opeyemi *et al.*, 2012). For instance, a research carried out in Nigerian revealed that, as high as 39% of the patients presented fungating tumors while 13% had clinical evidence of systemic metastasis (Adesunkanni *et al.*, 2006).

In developing countries diseases of the breast and its associated deaths are on the rise and its mainly attributable to the fact that most cases are reported late at health facilities and there is lack of screening methods. Misconceptions and local beliefs such as religiosity, spirituality and fatalistic beliefs surrounding breast cancer are the reasons why most Africans report late to health facility (Peepliwali A. K., and Coombes R. C. 2002) Women usually are able to detect breast changes by themselves but report late to healthcare facilities (Amaning, 2008). Lumps that develop in the breast are often detected when taking a bath or dressing up. This can be attributed to the fact that the awareness level with regards to breast cancer is low in the general African population. It is affirmed that breast cancer knowledge and understanding is low among the general population in Africa.

One of the early detection tools for breast cancer adopted in Ghana is Self-breast examination (SBE). Even though the importance of Breast Self-Examination (BSE) is contentious (Hakama *et al.*, 1995; Thomas *et al.*, 2002), the American Cancer Society endorses it for early detection of breast cancer as it supports women in two main ways; foremost, by becoming conversant

with both the appearance and the sense of their breasts and secondly, as a way of helping with the detection of any changes in their breasts as soon as possible (American Cancer Society, 2008). The proposal for breast cancer screening education to be taught in schools in order to help create awareness and encourage early recognition of the disease was presented by the NSCC (2012-2016) in Ghana. The training was supposed to start from 16 years in all schools in the country. But the question is, has this education been ever carried out in the schools?

2.7 Breast Screening

Breast self-examination (BSE), clinical breast examination (CBE), screen-film mammography, digital mammography, magnetic resonance imaging, and ultrasound can all be used to identify cancers before a biopsy is used to confirm breast tissue histopathology.

(Clegg-Lamptey *et al.*, 2009). Presently, Mammography, Clinical breast examination, and Breast Self-examination are the screening method options used for early detection of breast cancer. Mammography notwithstanding is very pricey and comprises extensive financial and personnel in its process. According to a study conducted by S.Y Opoku and others (2012), resorting to mammography for early detection is not very realistic for emerging countries like Ghana. On the other hand, BSE is less expensive and alternatively gives women a chance to acquire knowledge on what is normal as far as their breast is concerned and be able to identify any changes immediately (Isara and Ojedokun, 2011).

Breast screening is considered most times to be a way cancer of the breast is detected when it is too small to be felt or seen. It is mostly done by having an x-ray of the breast, usually termed as a mammogram. When breast cancer is detected at an early stage, it becomes very much convenient to treat it as there will be less treatment and it would be very likely for cancer to be treated. The foremost stage of breast screening is mammograms, as stated earlier. Consistent screening of the breast does not mean that breast cancer is prevented but it aids in detecting early breast cancers. Large research trials show that women who have regular breast screening

reduce their risk of dying from breast cancer by 20% compared to those who do not indulge in breast screening. (Okobia *et al.*, 2006; Gwarzo *et al.*, 2009)

Most cancers that are identified through breast screening are at an early stage, and there is a better chance of treatment being more successful. More than half of most breast cancers that are found through screening are very small and not spread to the lymph nodes. The lymph nodes, which can be found in the armpit is one prior area breast cancer could affect. If breast cancer is found early through breast screening and it is small or less detectable, breastconserving surgery is usually possible. This is when a surgeon retracts cancer and some engulfing tissues, instead of taking out the whole breast. After breast-conserving surgery.

One is recommended for radiotherapy treatment

2.8 Adolescents and Breast cancer screening

The period of the adolescent is that which offers training prospects for influencing wellbeing behavior through the transition to maturity. Education on BSE and matters about breast cancer at an earlier age will help boost affirmative behavior towards BSE (Isara and Ojedokun, 2011).

There have been few publications on how to direct Doctors concerning preventative breast care in adolescents. Moreover, adolescents involve themselves in certain lifestyles like body tattooing which have negative impact on breast health, without having information of its latent effect. (Quaranta *et al.*, 2011). Globally studies have reported high levels of breast cancer awareness among adolescents due to awareness programs highlighted through celebrations on the various media platforms (Junaibi *et al.*, 2011; Ranasingbe *et al.*, 2013; Oladele *et al.*, 2011). The problems identified about breast cancer among adolescents were their knowledge of the risk factor, signs and symptoms and the various screening techniques. A study conducted in Sri Lanka, about one-third of the students reported that they were unaware of the symptoms of breast cancer(Ranasinghe *et al.*, 2013). Also, research by Isara and Odjedokun, (2011) in Lagos reported that though students were aware of the existence of breast cancer, the awareness did

not transform to thorough knowledge of the risk factors associated with the disease. Another study conducted in Jordan By Sulemana (2014) revealed poor knowledge of breast cancer among students. However it is worth to mention that being exposed as an adolescence can have more effect of developing benign disease and breast cancer than an adult been exposed and that breast care programs should be focused on the youth (Quaranta *et al.*, 2011).

In the review of adolescents studies since 1960, fibroadenomas constituted the greater majority(30%-50%) of medically diagnosed masses prior to surgery, followed by fibrocystic change(1.4%-13%),benign phyllodes tumor(0%-17%),mastitis/abscess(0%-7%), proliferative disease(0%-7%), with malignancy found in 3.3% to 5.4%. The adjusted age incidence rate of breast cancer in women below 25years old in the year 2005 and 1993 was stated as 3.2 per million in Olmsted County Minnesota yearly. The prevention of Breast cancer is important as far as health is concerned; yet adolescents have little or no knowledge of the appropriate measures of caring for the breast (Early *et al.*, 2011). In Korea, students who were practicing breast cancer examination was higher than that observed in Nigeria (Shin *et al.*, 2012; Isara *et al.*,2011). Mostly, Cancer in the young is more destructive and results in lower survival rates, making early detection even more critical and highlighting the importance to promote breast cancer awareness among young females (Rosenberg and Levy- Schwartz, 2003; Sambanje and Mafuvadze, 2012).

From menarche to giving birth to a first child, the tissues of the breast is prone to exposures of the environment since there are swift epithelial production and deficiency of fatal duct distinction, which ultimately arise at the end of full-time pregnancy (Olditz, 2002). Oral contraceptive use before the age of 20 is related with a modest upsurge in breast cancer risk, which gradually to reference point of 10 years after last use. According to the American Cancer Society, though breast cancer is not preventable, nonjudgmental and sensitive communication

with regards to smoking nutrition, use of alcohol, and maintaining of weight might help young women in reduce their susceptibility to breast cancer.

Certain lifestyles such as smoking, nutrition and obesity can influence breast disease. The nurses research II (NHSII) confirmed that the comparative likelihood of estrogen receptorpositive breast cancer was discovered to be 1.51 in respondents who engaged in smoking more than 25 cigarettes per day before 20 years. (Al-delaimy *et al.*, 2004). Damage of the epithelial cells are directly caused by Carcinogens from smoking and also the conversion of estrogen to genotoxic metabolites. This is also a risk factor.

The NHSII coherent conveyed that adolescents who had high nondairy vitamin-D consumption had a 21% minor risk of proliferative benign breast disease (BBD) comparatively to those with lowest consumption, whereas adolescent calcium consumption dairy consumption did not count as a vulnerable of breast cancer (Colditz *et al.*, 2012). Physical activities and maintenance of weight lessen the vulnerability of breast cancer, which might be linked to hormonal causes. Low fat eating during adolescence also reduces the susceptibility to breast cancer. A ten-year study of 9 to 15-year of age confirmed a sophisticated risk of benign breast disease with higher body mass index, waist circumference, and height of adults. Nevertheless, there are inconsistencies in the results, while other studies point out that higher relative weight compared to peers at ten (10) and fifteen (15) years, is related with reduced susceptibility to breast cancer (Berkey C S *et al.*, 2012).

Some proficient organizations endorses the evaluation of the genes where there is found to be greater risk of a genetic predisposition. (Services *et al.*, 2005). Not recommending genetic testing before eighteen (18) years, the America College of Obs and Gynae that till 21 years genetic testing is not advisable. A substantial percentage of parents having gone BRCA1/2 testing yearn to know the genetic status of their child and 24% provide regular testing of their children with the reason that it could encourage positive health behaviors (Bradbury *et al.*

2010). Parents who oppose testing are those who have a genetic mutation, less education, and parents who are not whites. One report documented that 33 percent of children from BRCA1/2 families were curious in genetic testing during adolescence to measure their susceptibility to the breast cancer in infant (Bradbury *et al.*, 2008).

Issues surrounding testing includes the fact that there are psychological morbidities experiences associated with the majority of offspring with BRCA, because of their contact with family members. This consist of experience to more adverse life events such as parental illness or loss and concern for parents or themselves in 24% of persons who know about parental test outcomes. Many of these guardians/parents after knowing their status, share their test result within a month of receipt (Bradbury *et al.*, 2012). Disclosure is more popular with grown-up females' children with negative results, or parents with low level of education. The mean age of a child at disclosure was 17 years, with the majority of 14 years old knowing results. Due to the fact that most women become more worried after knowing their status, have high levels of psychological distress that are experienced because they now begin to think of becoming sick and greater cancer worries (Tercyak K P *et al.*, 2001). Health workers must deliberate and tackle such issues within families, because it gives more opportunities for proper psychotherapy and support. In adolescents, counselling and education about how the genes work by skilled personnel may be more suitable for further assessing, discussing risk (Jayasinghe Y *et al.*, 2009).

2.9 Breast Cancer Awareness

Breast cancer awareness is a struggle to increase awareness and minimize the stigma of breast cancer through education on symptoms and treatment. (Wikipedia, 2019). Health promotion as stated in the Ottawa Charter of 1986 World Health Organization is "The process of enabling people to have control over, and to improve, their health" (WHO, 1986). It is therefore essential to promote awareness among the female population to help empower women and females for that matter to take responsibility for their health. According to DeSantis *et al.* (2011), the aspect

of awareness that is important is the dissemination of knowledge that breast cancer is can be cured, if it is presented, detected and diagnosed early, coupled with good treatment facilities, the rate of survival is good.

Awareness and education together might result in a promising move in the stage at presentation of breast cancer. Radio, Television programs, and advertisements are a means of education which is cheaper simple and very popular and it needs to intensified. Education needs to be customarily suitable and targeted towards the individual and population so that the highest benefit can be gained (Smith *et al.*,2006).

2.10 Attitude and Barriers to Breast Screening

Though regular breast screening is well-thought-out as an important instrument in early detection of breast cancer, there is the identification of several barriers that prevent women from engaging in them (Rasu *et al.*, 2011; Alwan *et al.*, 2012) Just to mention a few , absence of self-confidence lack of time, being afraid to find a lump and feeling uneasiness about the breast (Brewer *et al.*,2000); poor access to health facility and low socioeconomic status (Aziz *et al.*, 2002); negative socio-cultural perception about breast cancer and strong belief in traditional medicine (Odusanya *et al.*, 2001) and lack of motivational support from parents, spouse or friends (Rosmawati *et al.*, 2010), health-related expectations (Eroglu *et al.*, 2011); anxiety and forgetfulness (Tang *et al.*, 2000). There is an urgent need for education of the public to inculcate the practice of regular breast screening among women to reduce the fear and misconceptions. All efforts have to be made to encourage the practice of BSE not only among women but also among the youth especially adolescents, as there is a visible increase in the incidence of cancer among the youth. The involvement of the community, family especially parents and spouses should be facilitated to maximize the understanding of breast self-examination.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

The methodology is a systematic, theoretical analysis of the methods that are applied to a field of study. This chapter details the approach for carrying out the project. Thus, it describes the methods, procedures and techniques adopted to answer the research questions. The chapters in this section include the research design, description of the study area, sample size estimation and sampling technique, sources of data, methods of collecting data, data analysis method and ethical consideration.

3.2 The Study Area

The research took place within Kumasi, the capital city of the Ashanti Region which is around 270km north of the national capital, Accra, with a population of about 2,035,064 (GSS, 2014). The metropolis is one of the thirty (30) districts in Ashanti Region. Kumasi is a swiftly developing city in Ghana with an annual growth rate of 5.4, distant over the territorial and national development rates of 2.7 and 2.5 separately. Almost 86% of the dynamic population within Kumasi is economically dynamic with a normal number of families per house being 3.4 in 119 communities inside ten (10) kilometers span (KMA, 2014). The metropolis shares boundaries with Kwabre East and Afigya Kwabre District to the north, Bosomtwi District to the west.

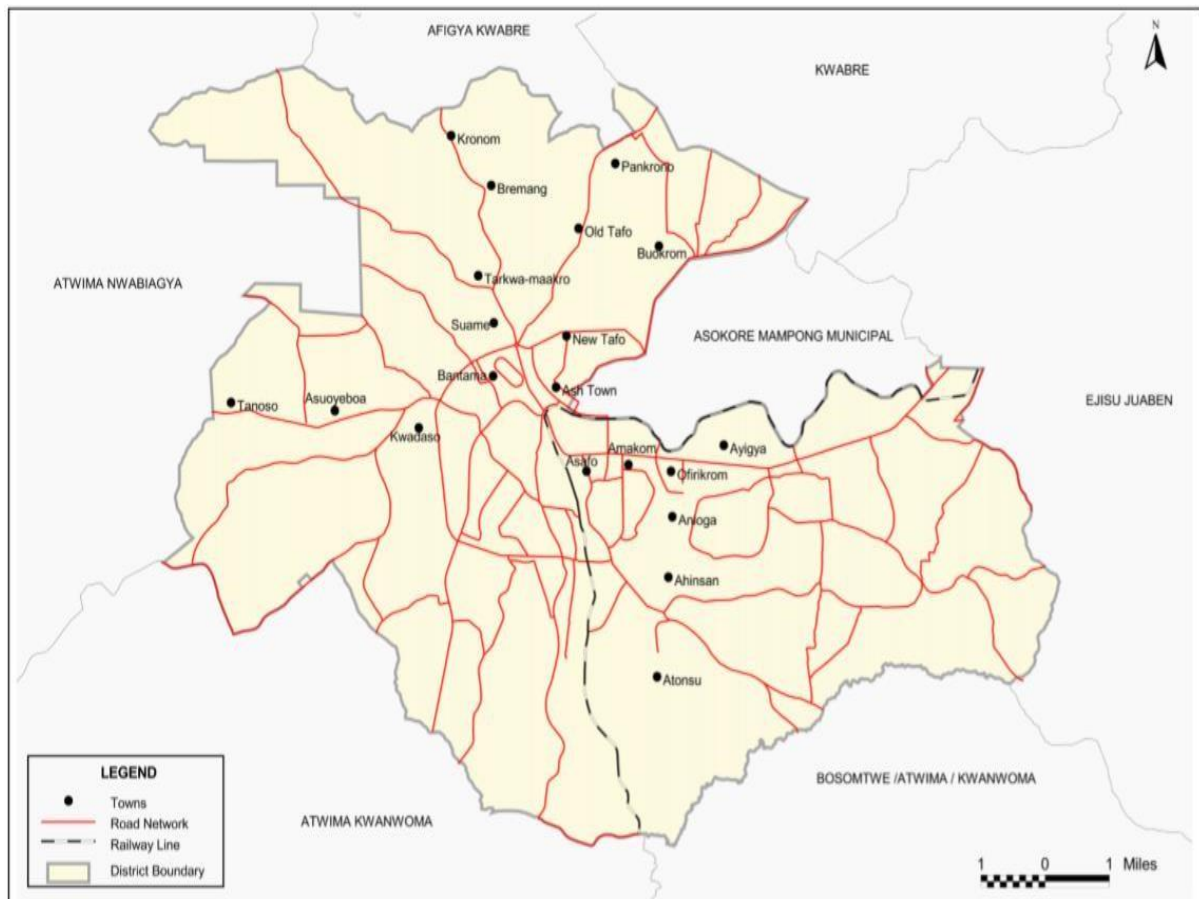


Figure: 3.1 Map of Kumasi Metropolis

(Source: Ghana Statistical Service, 2014)

The Metropolis covers a land area of 214.3 square kilometers, which is 0.9% of the region's land area of 24,389 square kilometers. The Metropolis has population density of 8,075 persons per square kilometer.

Although, almost all the ethnic groups in Ghana reside in Kumasi, the largest is Ashanti (80.7%) which is a sub-group of the larger Akan ethnic group. This is followed widely by the Mole Dagbon (8.7%) and Ewe (3.6%). Ethnic and cultural diversity abounds tremendously, yet the population is closely woven together in a harmonious relationship due to the presence of a strong traditional administrative set-up that strives to foster for cohesion among the various ethnic groups.

The Metropolis also has 919 pre-schools, 967 primary schools, 597 junior high schools, 34 senior high schools of which 26 are public and 8 are private schools. Both public and private schools have boarding facilities and there are 10 tertiary institutions.

Urban agriculture is the main practice in Kumasi. It focuses on the cultivation of vegetables such as carrot, lettuce, cabbage and green onions and livestock such as rearing of poultry, goat, sheep, and pigs (GSS, 2014)

3.3 Study design

This study adopted a descriptive cross-sectional technique and was conducted from May 2019 to August 2019 amidst female students in some selected senior high schools within the Kumasi Metropolis, in the Ashanti Region of Ghana. Approval for the study was obtained from the Committee on Human Research Publication and Ethics. Informed consent was also obtained from the students with full assurance of confidentiality before the start of the study.

3.4 Target Population

The study involved female students within some selected senior high schools in the Kumasi metropolis of the Ashanti Region of Ghana during the study period.

3.5 Research Population and Sampling

To estimate the number of schools and participants that will be representative for inference conclusion, a formula developed by Yamane (1967) was applied.

$$n = \frac{N}{1 + N (E)^2}$$

where, n is ample size

N= sample population

E= margin of error at a 95% confidence level (0.05).

Number of students (N = 1200),

$$n = \frac{1200}{1 + 1200 (0.05)^2} = 300 \text{ students}$$

3.5.1 Sampling Method

Through the use of a multistage sampling technique, a total number of 300 students were selected for the study. From the list of 34 schools within the Kumasi metropolis of the Ashanti Region of Ghana, Six schools(three girls schools and 3 mixed sex schools) were selected by purposive sampling. Two arms each of the SHS2 and SHS3 from each school were selected using simple random sampling via the table of random. The class register for each class was used as a sampling frame and a suitable sampling interval, derived from the overall number of students in the class and the size of sample estimated sample, respondents were selected using a systematic random sampling technique.

3.5.2 Inclusion Criteria

All-female students between 16-25 years within the selected senior high schools within the Kumasi metropolis.

3.5.3 Exclusion Criteria

- All male students
- All students who decline consent to be part of the study.
- All students below 16 years of age or above 25
- All first-year students (SHS 1)

3.6 Data Collection, Management, and Analysis

The tool used for collecting data was a structured self-administered questionnaire. The questionnaire, adapted from a previous study, a pretest of the questionnaires was done among 60 SHS 2 and SHS 3 in a school within another area of the metropolis. A review of the questionnaire aided in the modification before the study started. This tool was used to obtain

quantitative data such as socio-demographic data of the student, their knowledge on breast cancer and its risk factors, attitude and practice of BSE. Information obtained were entered into Excel for initial cleaning. The data cleaned by Excel was then exported to STATA v14 for additional data cleaning and analysis. The analysed data was presented using frequencies, percentages, and charts. Statistical significance for all testing was set as 0.05. Conclusions and recommendations were based on the data presented.

3.7 Ethical and Legal Considerations

3.7.1 Consent process

An approval letter was received from the Committee on Human research, publication and ethics prior to the start of the study. Selected female students were engaged in a thorough discussion of the purpose and significance of the study. Written informed consent was then obtained from each participant.

3.7.2 Anonymity and Confidentiality

All selected female students who consented to partake in the study were de-identified and were only known to the principal investigator. Particulars of participants were made known to the Principal Investigator. Respondents were assured that any information provided will remain private and confidential.

3.7.3 Record Retention

All data extractions forms obtained from the field were kept under lock and key. Hard copy data was transcribed on a password protected computer with an active antivirus.

3.7.4 Data Access

All data obtained from the field were accessible to only the principal investigator, the KNUST Committee on Human Research and Publication Ethics.

3.7.5 Risk

There was no anticipated risk to participants since they were only to answer questions.

This in no way destructed or interfered with their studies or daily academic activities.

3.7.6 Potential benefits to participants

The students will be educated on appropriate practices to prevent the development of breast cancer during the period of taking their information. Also, Periodic interventional programs targeting young girls through this study, will be built possibly into the second cycle school's curricula concerning breast cancer and BSE practices to be initiated from their senior year in school to enlighten and disseminate accurate information concerning breast cancer, its associated risk factors and how to perform BSE to teenage girls perhaps in the near future. Consequently, the presentation of the disease at a late stage will be reduced and early detection for better management will improve.

3.7.7 Compensation to participants

The participants did not receive any form of compensations.

3.7.8 Assumptions

The following were assumed for the research

- That all questions will be answered by respondents
- Respondents will be truthful honest and frank with their responses
- The sample size will be adequately be a representation of the population under study

3.7.9 Limitations

- There are numerous senior high schools in the Kumasi metropolis and the knowledge base of all these females in these high schools is crucial for intensification of education and awareness programs however to maintain a manageable scope questionnaire were executed only to some selected Senior high Schools in Kumasi.

- Most respondents are likely to have provided answers to reflect a socially acceptable norm. Therefore, depending on the questionnaire, itself is a research limitation, as it is difficult to collect sensitive data. Consequently, if the answers given by the respondents are biased in any case, the study results will be affected.
- Another limitation was the use of a purposive sampling method (researcher's own decision) because it made it difficult to generalize the research findings. There may also be a high degree of bias and error vulnerability.



CHAPTER FOUR

RESULTS

4.1 INTRODUCTION

The results of the research are presented in this chapter. First, is the demography of the respondents followed by a presentation of the results which addresses the various objectives of the research.

4.2 Socio-Demographic Characteristics of Respondents

A total sample of 305 respondents participated in the study. Their socio-demographic characteristics are shown in the above table 1.0. The mean age was 16.9 years (standard deviation \pm 0.8 years). The majority of the students (82.0%) were aged 16-17 years and the lowest age groups representing (0.3%) were above 20 years. These students were mainly single with a percentage of (99.34) with a few cohabiting (0.7%). Further, the results revealed that only a few of the students were Muslims (6.26%) with a very minimum of them (0.3%) with Other religions. The majority of them (97.05%) however were Christians. More of the students (81.97%) with regards to their age at menarche fell under the category of 12 years and above meaning that, they started menstruating at 12 years or more. Less than half of the students (18.3%) however had their menses below age 12. Table 1.0 gives a detailed description of the demographics of respondents.

Table 1.0: Socio-Demographic Characteristics of Respondents.

¹ .3 Students Knowledge on Breast Cancer

Based on the results, almost 302 (99.02%) all the students have heard about breast cancer, with their 3 topmost primary sources of information to be TV, radio and hospital with a percentage of 111 (36.75%), 60 (19.87%) and 36 (11.92%) respectively. Few 30 (9.84%) students reported

Variables	Frequency(N=305)	Percentage (%)
Age (Years)		
16	93	30.5
17	151	49.5
18	51	16.7
19	9	2.9
21	1	0.33
Marital Status		
Single	303	99.34
Married	0	0.00
Cohabiting	2	0.66
Divorced	0	0.00
Form		
SHS 2	106	34.75
SHS 3	199	65.25
Religious background		
Christian	296	97.05
Muslim	8	6.26
Other	1	0.33
Age at Menarche		
≥12 Years	250	81.97
≤12 Years	55	18.03

agreed to it that one can be screened for breast cancer and 137 (44.92%) agreed to the fact that a woman can get screened for breast cancer as often as possible. (Table 4.1).

family history of breast cancer and stated aunties 10 (33.33%) to be the family member being affected with breast cancer. Majority of the students 276 (90.49%)

Table 4.2: Students Knowledge on Breast Cancer

Variable	Category	Frequency (N=305)	Percentage (%)
Heard about breast cancer	Yes	302	99.0
	No	3	0.98
Primary source of information on breast cancer	- Friend	28	9.27
	- Hospital	36	11.9
	- Newspaper	29	9.6
	- Radio	60	19.9
	- TV	111	36.8
	- Seminar	20	6.6
	- Other	18	5.96
	-		
Family history of breast cancer	Yes	30	9.84
	No	275	90.2
Family member affected with breast cancer	Auntie	10	33.3
	Mother	1	3.3
	Sister	4	13.3
	Other	15	50.0
Be screened for breast cancer	Yes	276	90.5
	No	29	9.5
How often should a woman get screened for breast cancer	- Once in a life time	2	0.7
	- Twice in a life time As	8	2.6
	- often as possible	137	44.9
	- Once every year	24	7.9
	- As scheduled		
	- As prescribed by a physician	10	3.3
		32	10.5
	- Don't know	92	30.2
	-		

4.4 Respondents knowledge on signs and symptoms of Breast Cancer

Respondents were probed further to ascertain their level of knowledge on signs and symptoms of breast cancer. It was revealed that majority of these students were cognizant that the signs and symptoms of breast cancer included breast lumps (148, 38.3%), bloody nipple discharge (117, 38.3%), change in shape and or size of breast (159, 52.1%) and redness of the skin of the breast (115, 38.0%). Surprisingly, only about 30 representing (9.8%) of the students knew that lump under the armpit could be a warning sign of breast cancer. Quite a significant number of students (69, 22.6%) did not know of any of the signs and symptoms of breast cancer. This result is illustrated in Fig. 4.0.

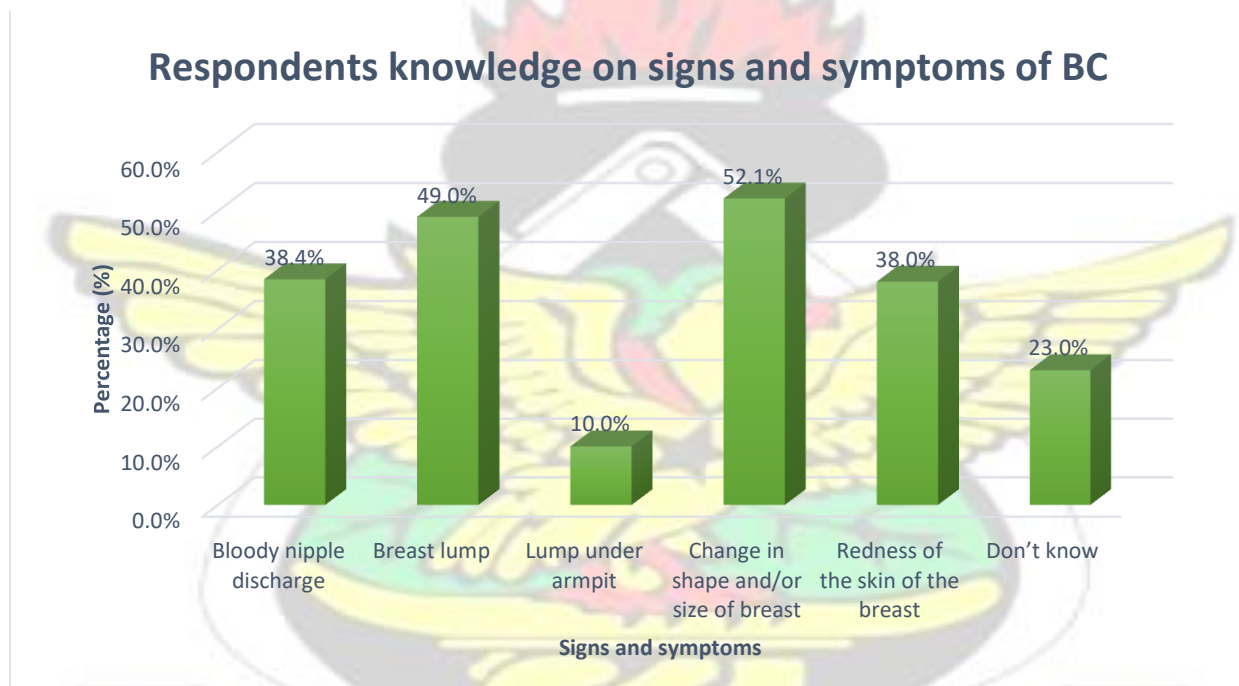


Figure 4.0: Respondents knowledge on signs and symptoms of Breast Cancer

4.5 Respondents' knowledge of risk factors of breast cancer.

The present study revealed that, the topmost risk factors to breast cancer the students agreed to were; it affects females only, having family history of breast cancer, and exposure to radiation with a percentage of 50.82%, 40.33% and 36.39% respectively.

Table 4.3: Respondents' knowledge of risk factors of breast cancer. (Students gave multiple responses) Response

	Yes	No
It affects only females	155(50.8)	150(49.2)
It can be acquired through transmission	35(11.5)	270(88.5)
Family history of breast cancer	123(40.3)	182(59.7)
Giving birth to your first child after age 30	10(3.3)	295(96.7)
Early start of menses (before 12 years)	6(1.97)	299(98.0)
Obesity after menopause	7(2.30)	298(97.7)
Late initiation of breastfeeding/not	35(11.5)	270(88.5)
Being a woman	19(6.2)	286(93.8)
It affects both males and females	49(16.0)	256(83.9)
Use of oral contraception	43(14.1)	262(85.9)
Cigarette smoking	62(20.3)	243(79.7)
Old age	9(2.9)	295(97.0)
Exposure to radiation	111(36.4)	194(63.6)
Don't know	62(20.3)	243(79.7)

4.6 Practices of Preventive Methods of Breast Cancer

The study revealed that few 118 (36.7%) had ever engaged in breast examination, and those who have ever engaged in breast examination before were not on regular basis. Majority 94 (79.7%) stated BSE as the method used for the examination. Also, reasons given by students who reported never examined their breast before was they having no idea how to go about breast examination and they feel shy to be examined. Less than half 147 (48.2%) had ever practiced BSE. For students who reported ever practiced BSE, the last time practiced BSE 80 (54.4%) was more than 6 months. The students were in the view that BSE can be performed

89 (29.2%) any day one wants to. More than three quarters 270 (88.5%) were in the view that BSE can help in early detection of breast cancer. (Table 4.6)

KNUST



Table 4.4 Practices of Preventive Methods of Breast Cancer

Variable	Category	Frequency (N=305)	Percentage (%)
Engaged in any breast examination	Yes	118	38.7
	No	187	61.3
How frequent do you examine your breast	Once in two weeks	2	1.7
	Once in a week	19	16.1
	Once in a month	13	11.0
	Once in a year	7	5.9
	Not regularly	77	65.3
Method used for examination	Clinical Examination	17	14.4
	Breast self-Examination	94	79.7
	Mammography	0	0.0
	Other	7	5.9
Reason for not examining your breast	I feel shy to examine	26	13.9
	Haven't heard of it before	6	3.2
	Don't know how to go about it	68	36.4
	Cancer risk is high only for the old	2	1.1
	I did not think cancer is for the young	20	10.7
	Never felt the need	31	16.6
	I am not aware of the proper techniques	0	0.00
Practiced BSE	Yes	147	48.2
	No	158	51.8
Last time practiced BSE	≤ 6 months	67	45.6
	> 6 months	80	54.4
Suitable time to perform BSE	Any day one wants to	89	29.2
	A week after menstruation	52	17.1
	A week before menstruation	13	4.3
	During menstruation	20	6.4
	Don't Know	131	42.9
BSE help in early detection of breast cancer	Yes	270	88.5
	No	35	11.5

4.7 Method Used to Screen for Breast Cancer

For the students who agreed to the fact that one can be screened for breast cancer, 72.1%, 80.0% and 15.9% agreed that clinical examination, Breast Self-Examination (BSE) and ultrasound are the methods that can be used to screen for breast cancer respectively. (Figure 4.2)

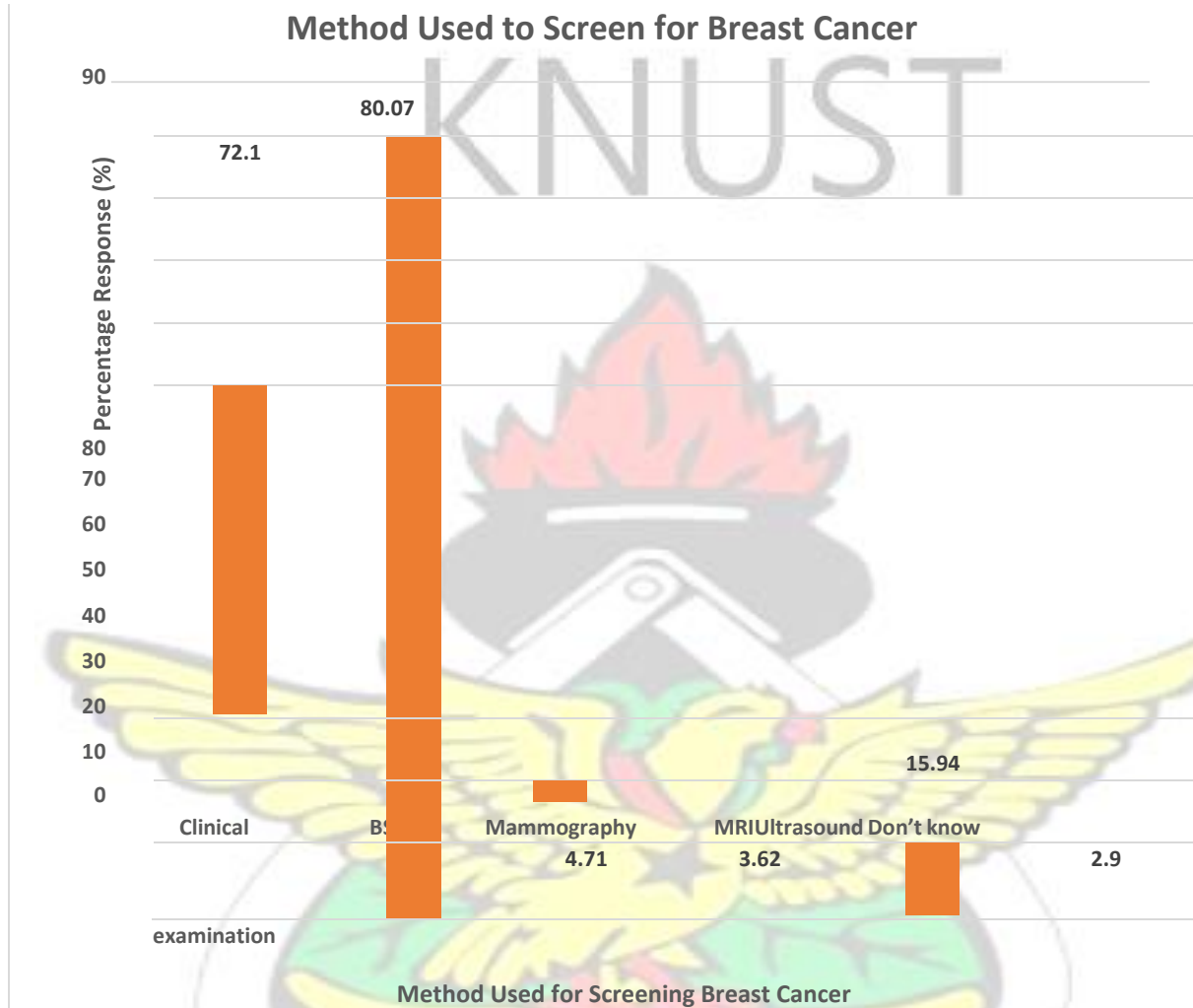


Figure 4.2 Method Used to Screen for Breast Cancer

4.8 Attitude of Students towards Breast Cancer

The study revealed diverse opinion on attitudes of breast cancer. Almost three quarters 223 (73.11%) of the students disagreed to the statement *Breast cancer patients should be isolated*. Majority 279 (91.48%) of the students disagreed to the statement; *Breast cancer is a punishment from God*. More than three quarters 234 (76.72%) agreed that *breast cancer can be detected by yourself*. Almost half 152 (49.84%) agreed that they are scared that they will detect or diagnose them for breast cancer. Two hundred and fifty eight of the students making up 84.59% agreed to the statement; *screening for abnormalities through BSE is important and*

useful, 192 (62.95%), 275 (90.16%) and 256 (85.57%) of the students disagreed respectively to the statement; *It is embarrassing to practice BSE in that, other people see or touch the breast to detect the disease, Doing BSE is a waste of time, Only old women should do BSE.* Also majority 251 (82.30%) agreed that *breast screening campaigns motivates you to detect cancer by yourself.* (Table 4.5)

Table 4.5 Attitude of respondents towards breast cancer

Question Item	Category	Frequency (N=305)	Percentage (%)
Breast Cancer patients should be isolated	Agree	30	9.84
	Disagree	223	73.11
	Unsure	52	17.05
Breast Cancer is a punishment from God	Agree	6	1.97
	Disagree	279	91.48
	Unsure	20	6.56
You can detect breast cancer by yourself	Agree	234	76.72
	Disagree	38	12.46
	Unsure	33	10.82
You are scared that you will detect breast cancer	Agree	152	49.84
	Disagree	95	31.15
	Unsure	58	19.02
Screening for abnormalities through BSE is important and useful	Agree	258	84.59
	Disagree	15	4.92
	Unsure	32	10.49
Breast screening campaigns motivates you to detect breast cancer by yourself	Agree	251	82.30
	Disagree	19	6.23
	Unsure	35	11.43
It is embarrassing to practice BSE in that, other people see or touch the breast to detect the disease	Agree	79	25.90
	Disagree	192	62.95
	Unsure	34	11.15
Doing BSE is a waste of time	Agree	8	2.62
	Disagree	275	90.16
	Unsure	22	7.21

Only old women should do BSE	Agree	19	6.23
	Disagree	261	85.57
	Unsure	25	8.20

4.9 Factors that influences Breast Cancer Preventive Practices

Bivariate Relation between Factors that Influence Breast Cancer Preventive Practices

Testing for factors that influence breast cancer preventive practices, the study revealed that class/form of students, having a family history of breast cancer, knowing one can be screened for breast cancer, how often should a woman be screened for breast cancer, ever practiced BSE, BSE help in early detection of cancer, and the suitable time to perform BSE were statistically associated with ever engaged in breast cancer examination (breast cancer preventive practices) with a p-value of 0.026, 0.033, 0.013, 0.024, 0.000, 0.005 and 0.000 respectively. (Table 5.0).

Table 4.6: Bivariate Relation between Factors that Influence Breast Cancer Preventive Practices

Variable	Category	Ever Engaged in Breast Examination		χ^2	pvalue
		Yes (N %)	No (N %)		
Age (years)	16-18	116 (39.32)	179 (60.68)	1.522	0.217
	19-21	2 (20.00)	8 (80.00)		
Marital status	Single	116 (38.28)	187 (61.72)	3.190	0.074
	Cohabiting	2 (100)	0 (0.00)		
Residency	Rural	44 (36.97)	75 (63.03)	0.242	0.623
	Urban	74 (39.78)	112 (60.22)		
Age at menarche	9-13	82 (40.80)	119 (59.20)	1.104	0.293
	14-17	36 (34.62)	68 (65.38)		
Class/Form	SHS 2	86 (43.22)	113 (56.78)	4.948	0.026*
	SHS 3	32 (30.19)	74 (69.81)		
Religion	Christianity	114 (38.51)	182 (61.49)	1.066	0.587
	Muslim	4 (50.00)	4 (50.00)		
	Other	0 (0.00)	1 (100)		
Heard about breast cancer	Yes	118 (39.07)	184 (60.93)	1.912	0.167
	No	0 (0.00)	3 (100)		

Family history of breast cancer	Yes	17 (56.67)	13 (43.33)	4.534	0.033*
	No	101 (36.73)	174 (63.27)		
Knowing of being Screened for breast cancer	Yes	113 (40.94)	163 (59.06)	6.215	0.013*
	No	5 (17.24)	24 (82.76)		
How often should a woman be screened for breast cancer	Once in a life time	1 (50.00)	1 (50.00)	14.581	0.024*
	Twice in a life time	1 (12.50)	7 (87.50)		
	As often as possible	60 (43.80)	77 (56.20)		
	Once every year	14 (58.33)	10 (41.67)		
	As scheduled	5 (50.00)	5 (50.00)		
	As prescribed by a physician	13 (40.63)	19 (59.38)		
	Don't know	24 (26.09)	68 (73.91)		
Practiced BSE	Yes	102 (69.39)	45 (30.16)	112.74	0.000*
	No	16 (10.13)	142 (89.87)	3	
BSE help in early detection of cancer	Yes	112 (41.48)	158 (58.52)	7.738	0.005*
	No	6 (17.14)	29 (82.86)		
Suitable time to perform BSE	Any day one wants	37 (41.57)	52 (58.43)	22.312	0.000*
	to A week after menstruation	30 (57.69)	22 (42.31)		
	A week before menstruation	9 (69.23)	4 (30.77)		
	During menstruation				
	Don't Know	8 (40.00)	12 (60.00)		
		34 (25.95)	97 (74.05)		

***Statistically significant**

4.10 Factors that influences Breast Cancer Preventive Practices

Bivariate Relation between Factors that Influence Breast Cancer Preventive Practices

Testing for factors that influence breast cancer preventive practices, the study revealed that class/form of students, having a family history of breast cancer, knowing one can being screened for breast cancer, how often should a woman be screened for breast cancer, practiced BSE, BSE help in early detection of cancer, and the suitable time to perform BSE were

statistically associated with ever engaged in breast cancer examination (breast cancer preventive practices) with a p-value of 0.026, 0.033, 0.013, 0.024, 0.000, 0.005 and 0.000 respectively. (Table 5.0).

Table 4.7 Bivariate Relation between Factors that Influence Breast Cancer Preventive Practices

Variable	Category	Ever Engaged in Breast Examination		χ^2	p-value
		Yes (N %)	No (N %)		
Age (years)	16-18	116 (39.32)	179 (60.68)	1.522	0.217
	19-21	2 (20.00)	8 (80.00)		
Marital status	Single	116 (38.28)	187 (61.72)	3.190	0.074
	Cohabiting	2 (100)	0 (0.00)		
Residency	Rural	44 (36.97)	75 (63.03)	0.242	0.623
	Urban	74 (39.78)	112 (60.22)		
Age at menarche	9-13	82 (40.80)	119 (59.20)	1.104	0.293
	14-17	36 (34.62)	68 (65.38)		
Class/Form	SHS 2	86 (43.22)	113 (56.78)	4.948	0.026*
	SHS 3	32 (30.19)	74 (69.81)		
Religion	Christianity	114 (38.51)	182 (61.49)	1.066	0.587
	Muslim	4 (50.00)	4 (50.00)		
	Other	0 (0.00)	1 (100)		
Heard about breast cancer	Yes	118 (39.07)	184 (60.93)	1.912	0.167
	No	0 (0.00)	3 (100)		
Family history of breast cancer	Yes	17 (56.67)	13 (43.33)	4.534	0.033*
	No	101 (36.73)	174 (63.27)		
Knowing of being Screened for breast cancer	Yes	113 (40.94)	163 (59.06)	6.215	0.013*
	No	5 (17.24)	24 (82.76)		

How often should a woman be screened for breast cancer	Once in a life time	1 (50.00)	1 (50.00)	14.581	0.024*
	Twice in a life time	1 (12.50)	7 (87.50)		
	As often as possible	60 (43.80)	77 (56.20)		
	Once every year	14 (58.33)	10 (41.67)		
	As scheduled As prescribed by a physician	5 (50.00)	5 (50.00)		
	Don't know	13 (40.63)	19 (59.38)		
Practiced BSE	Yes	24 (26.09)	68 (73.91)	112.74	0.000*
	No	102 (69.39)	45 (30.16)		
BSE help in early detection of cancer	Yes	16 (10.13)	142 (89.87)	3	0.000*
	No	112 (41.48)	158 (58.52)		
Suitable time to perform BSE	Yes	6 (17.14)	29 (82.86)	7.738	0.005*
	No				
	Any day one wants to	37 (41.57)	52 (58.43)		
	A week after menstruation	30 (57.69)	22 (42.31)		
	A week before menstruation	9 (69.23)	4 (30.77)		
	During menstruation	8 (40.00)	12 (60.00)		
Don't Know		34 (25.95)	97 (74.05)	22.312	0.000*

4.11 Regression Analysis for Factors that Influence Breast Cancer Preventive Practices A

logistics regression analysis performed to test for the possible association between the factors which showed a significant association at the bivariate analysis level. Having a family history of breast cancer were 2.25 times likely to engage in breast cancer preventive practices (OR=2.25, CI=1.05-4.83, p-value=0.037). Being in higher class (higher your educational level) also proved a significant association such that students who were in SHS 3 were 76.00% likely to engage in breast cancer preventive practices (OR=1.76, CI=1.07-2.90, pvalue=0.027). Knowing you can be screened for breast cancer was associated with breast cancer preventive

practices such that students who know they can be screened were 3.33 times likely to engaged in breast examination as compared to those who said otherwise (OR=3.33, CI=1.23-8.98, p-value=0.018). Students who were of the view that BSE help in early detection of breast cancer were 3.43 times likely to engage breast cancer preventive practices (OR=3.43, CI=1.38-8.53, p-value=0.008).

Adjusting to control for confounders, only being in a higher class/form and ever practiced BSE showed a significantly association with ever engage in breast cancer preventive practices such that being in higher level of education was 2.12 times and 17.57 times likely engage in breast cancer preventive practices (AOR=2.12, CI=1.04-4.33, p-value=0.038; AOR=17.57, CI=8.70-35.48, p-value=0.000). However, having a family history, knowing that one can be screened and being aware that BSE help in early detection of breast cancer was not significantly associated with breast cancer preventive practices. Those having a family history of breast cancer, knowing that one can be screened and being aware that BSE help in early detection of breast cancer were 66.00%, 2.19 and 95.00% times likely to ever engage in breast cancer preventive practices (AOR=1.62, CI=0.57-4.65, p-value=0.367; AOR=2.19, CI=0.56-8.63, p-value=0.261; AOR=1.95, CI=0.57-6.65, p-value=0.284). (Table 6.0).

CHAPTER FIVE

DISCUSSIONS

Discussions of the results of this research are presented in this chapter. This research was set out to determine the level of knowledge, attitude, and practices of breast cancer prevention among female students in some selected senior high schools within the Kumasi metropolis

5.1 Sociodemographic characteristics of respondents

The result from the research revealed that the majority of the respondents were between the ages 16 and 17 years followed by 18 and 19 years which was not surprising as this is the age range among students in tertiary institutions. There was however an outlier (21 years), though insignificant, was not surprising because, with the introduction of the Free SHS school system in Ghana, opportunities have been created for the less privileged who desire to further their education. The mean age was 16.9 ± 0.8 similar to the mean age of 16.5 ± 1.4 reported in a study conducted in Nigeria among senior secondary school students (Isara and Ojedokun, 2011).

5.2. Level of knowledge of respondents on breast cancer

Promoting health is a way of helping people have absolute control over their health as emphasized by W.H.O in its Alma-Ata declaration 1986. It encompasses an extensive and variety of social and environmental interventions that are intended to improve and protect the health of the individual as well as their quality of life. This can be achieved by preventing the root causes of ill health, and not just focusing on treatment and cure. (WHO, 2019)

From this study, it was realized that the awareness level of students on breast cancer was high as most (99%) had heard of breast cancer. This can be mainly attributed to the annual campaigns organized by Peace and Love Hospital and the various health facilities to increase awareness of breast cancer in Ghana and countries across the world every October. This high level of awareness has also been reported in several other studies (Isara and Ojedokun, 2011; Adenike et al 2011;). Contradictively, a study conducted in Jordan revealed that 49% of the respondents had low knowledge of breast cancer (Suleman, 2014). The various mass medias available in Ghana are doing tremendously well with creating awareness especially on National Breast Cancer day celebrations and this has been reflected in this study as it (media) was the major source of information; Television (36.8%) and Radio (19.5%) as reported by the

respondents. There have been similar reports in other studies in Nigeria and Sri Lanka (Ranasinghe et al, 2013; Isara and Ojedokun, 2011)

Although there was a high level of awareness of breast cancer from the results of this research, the respondent's knowledge of breast cancer risk factors was very low. For example, 88.5% of the respondents were unaware of the fact that breast cancer is not a transmittable disease and also more than half (59.7%) of the students were ignorant of the fact that a family history of breast cancer was a risk factor. Moreover, a few of the respondents were able to recognize obesity after menopause (2.3%), late initiation of breastfeeding (11.5%), and having the first child after the age of 30 years (3.3%) as risk factors. This indicates that though the mass media is doing a great job through its various strategies, its impact as far as practices of preventive methods is very poor. This means that a more personalized approach that allows for feedback responses must be resorted to. It can be deduced from our study that knowledge about risk factors is inadequate or low and, hence, the need for reinforcement to promote screening practices among adolescents.

5.3 Respondents attitude towards breast cancer early detection methods

The attitude of the respondents towards breast cancer early detection methods were positive. Most (76.7%) agreed to the fact that one can detect breast cancer by self. A significant number (84.9%) also agreed to the fact that screening for abnormalities through BSE is important and useful. According to a study by Kiguli- Malwadde *et al.* (2010) a woman who perceives that breast cancer is a serious disease would be more likely to perform regular breast examinations. This positive attitude is being witnessed probably because of the fact that numerous awareness programs on the various media platforms are educating the public on the seriousness of breast cancer and it has reflected in the fact that a number of the respondents (82.3%) responded positively to the fact that breast screening campaigns motivate you to detect breast cancer by self. Additionally, about (90.5%) agreed to the fact that practicing BSE not a waste of time,

most (73.1%) disagreed that breast cancer patients should be isolated with a few agreeing that they should be isolated. About (91.5%) disagreed that breast cancer is a punishment from God. However, approximately 50% of the respondents accepted the fact that they were scared they will detect breast cancer through regular breast screening. The attitude of respondents from this study is positive and therefore projections are that if education on the screening methods is intensified among females within the senior high schools and the youth as a whole, the behavior towards regular screening resulting in early detection and proper management of breast cancer will be the order of the day.

5.4 Factors that influence breast cancer early detection methods among respondents

With regards to breast cancer early detection practices, most (71.8%) knew about Clinical Examination, about (79.5%) were aware of BSE with just a few (4.7%) having knowledge about Mammography. The knowledge of respondents on the early detection practices, however, did not translate in their practices. Only about (38.6%) reported engaging in a regular practice of early detection methods such as BSE, CE, and Mammography. Therefore, revealing very low practices. This result however lower, cements the findings of Sulemana (2014) who revealed that among female students in Jordan only 61.1% of the respondents ever practiced (Sulemana, 2014). More than half of this study respondents reported not engaging in the practices.

This low level of practice among students could be attributed to the fact that some of the respondents (36.4%) disclosed that they did not know how to go about the methods, and (10.4%) did not think cancer is for the young.

According to a study by Isara and Odojekun, Level of education and family history were significantly associated with practices of breast cancer preventive methods. Similar findings were made by this research at the bivariate analysis which indicated ($p\text{-value} < 0.005$) that breast cancer screening increases with level of education(class/form) of students(0.26), having

a family history of breast cancer(0.033), knowing one can being screened for breast cancer(0.013), how often a woman should be screened for breast cancer (0.024), practices of BSE(0.00), BSE help in early detection of cancer(0.005), and the suitable time to perform BSE(0.000) showing statistical association with ever engaged in breast cancer examination (breast cancer preventive practices).However as the research revealed there is no significant relationship between religion and breast cancer screening.

Also, the results of the logistic regression show that, respondents having a family history of breast cancer were likely to engage in breast cancer preventive practices with high odds ratio of 2.25. Also Knowing you can be screened for breast cancer was associated with breast cancer preventive practices such that students who know they can be screened were 3.33 times likely to engaged in breast examination as compared to those who said otherwise (OR=3.33). However, the results of the regression reveal that having a family history, knowing that one can be screened and being aware that BSE help in early detection of breast cancer was not significantly associated with breast cancer preventive practices.

Providing health education within the various Second cycle schools might help boost regular breast cancer screening geared towards early detection. Raising awareness of affordable early detection methods is also vital.

CHAPTER SIX

CONCLUSION AND RECOMMENDATION

This chapter presents the conclusion, recommendation from the research and recommendation for future research.

6.1. CONCLUSION

The study as part of its objectives was to ascertain the knowledge of breast cancer among female senior high school students, assess the attitude of female senior high school students towards breast cancer early detection methods and determine the factors that influence breast cancer early detection practices.

The results of the research conclude that female senior high school students have a general knowledge of breast cancer, risk factors and signs and symptoms with their source of information being the media.

Also, though their awareness of breast cancer early detection methods was high, practices of these methods were poor. Students however had positive attitude towards the various breast cancer preventive practices

Additionally, even though the level of education and age are more likely to influence screening practices for breast cancer, these factors are not significant in determining the likelihood of screening for breast cancer from this research.

6.2. RECOMMENDATION FROM RESEARCH

Acquiring health behaviors at an early age in life makes a great impact on future health. Results of this research reveal a low level of knowledge on breast cancer risk factors, early warning signs and BSE among female students within Senior High Schools within the Kumasi

Metropolis and the practice of BSE is being practiced monthly among just a few of the students.

The following are a couple of recommendations proposed from this research:

- Ghana Education Service can utilize Information, Education and Communication materials (IEC), as well as infographics, in the school's environment to create awareness about breast cancer, its risk factors, signs and symptoms and the benefit of early detection. This needs to be intensified and also must target the young female adolescent who will in no time become a woman.
- The Ghana Health Service, Ghana Education Service, religious organizations, and non-governmental organizations within the country should come up with effective breast health programs such as health talks and seminars targeting the youth to help females gain healthy habits starting very early during their developmental years.
- Trainer of trainee programs should also be organized by Ghana Education service in collaboration with prominent institutions concerned with Breast Cancer such as Peace and Love Hospital, in the second cycle and tertiary schools to train teachers on breast self-examination techniques for them to transfer the knowledge to the students. This could be built into the school's curricula by the Ministry of education.
- The media though already doing well with awareness and sensitizations, must broaden and intensify these programs.

6.2.1 RECOMMENDATION FOR FUTURE RESEARCH

- Future research should look at the level of knowledge of breast cancer among female students in senior high schools in other regions of Ghana.
- Other research should also investigate whether there are educational programs organized within schools to help boost the knowledge of the youth on breast cancer and also the most suitable screening methods for adolescents

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APPENDIX

QUESTIONNAIRE

Study Title:

Knowledge, attitude and practices towards breast cancer and its prevention among female students in some selected Senior High Schools within the Kumasi Metropolis

DATA COLLECTION SHEET

Thank you for agreeing to be part of this study. I will want to reassure you that all answers you give will be kept confidential and your name will not be connected to your answers in any way. The following are some few questions about your demographics, your knowledge about breast cancer, attitude as well as practices of breast cancer preventive methods. Please **TICK** your preferred answers appropriately.

Date.....

Section A: Demographics information

Age: Year (form/SHS): Two ☐ Three ☐

Age at Menarche:

Marital status Single ☐ Married ☐ Cohabiting ☐ Divorced

Name of School:

Place of Residence.....

Religion: Christian ☐ Muslim ☐ Traditional ☐ Other ☐

Tribe:

Section B: Student's knowledge on breast cancer

1. Have you heard about breast cancer?

Yes..... [☐]

No..... [☐]

2. If Yes, what was your source of information (You can choose more than one options)

- | | |
|--|--------------------------------------|
| <input type="checkbox"/> Hospital | <input type="checkbox"/> Television |
| <input type="checkbox"/> Radio | <input type="checkbox"/> Print Media |
| <input type="checkbox"/> From a friend | <input type="checkbox"/> Seminars |
| <input type="checkbox"/> News Paper | <input type="checkbox"/> Others |

3. Any Family history of breast cancer?

- Yes..... []
- No..... []

4. Which of your Family members?

- ☐ Mother
- ☐ Sister
- ☐ Auntie
- ☐ Other

5. What are some of the risk factors of breast cancer? (select all that apply)

- | | |
|--|--|
| <input type="checkbox"/> It affects only females | <input type="checkbox"/> It affects both males and females |
| <input type="checkbox"/> It can be acquired through transmission | <input type="checkbox"/> Old age |
| <input type="checkbox"/> Family history of breast cancer | <input type="checkbox"/> Exposure to radiation |
| <input type="checkbox"/> Giving birth to your first child after age 30 | <input type="checkbox"/> Use of oral contraception |
| <input type="checkbox"/> Early start of menses (before 12 years) | <input type="checkbox"/> Cigarette smoking |
| <input type="checkbox"/> Obesity after menopause | <input type="checkbox"/> Being a woman |
| <input type="checkbox"/> Late initiation of breastfeeding/not breastfeeding at all | |
| <input type="checkbox"/> Don't know | |

6. What are some of the warning signs of breast cancer? (You can choose more than one option)

- ☐ Bloody nipple discharge
- ☐ Breast lump

- ☐ Lump under armpit
- ☐ Change in shape and/or size of breast
- ☐ Redness of the skin of the breast
- ☐ Don't know
7. Do you know you can screen or be screened for breast cancer?
- Yes ☐
- No ☐
8. If yes, which methods do you know? (You can choose more than one options)
- ☐ Clinical Examination
- ☐ Breast self-Examination
- ☐ Mammography
- ☐ MRI
- ☐ Ultrasound
- ☐ Other
9. How often should a woman get screened for breast cancer?
- ☐ Once in a life time
- ☐ Twice in a life time
- ☐ As often as possible
- ☐ Once every year
- ☐ As scheduled
- ☐ As prescribed by a physician
- ☐ Don't know

Section C: Practices of preventive methods

10. Have you ever engaged in any breast examination before?
- Yes ☐
- No ☐

11. If Yes to question 10, how frequently do you examine your breast?

☐ Once in two weeks

☐ Once in a week

☐ Once in a month

☐ Once in a year

☐ Not regularly

12. Which method did you use for the examination?

☐ Clinical Examination

☐ Breast self-Examination

☐ Mammography

☐ Other?

13. If No to question 10, what is your reason for not examining your breast?

a. ☐ I feel shy to examine

b. ☐ Haven't heard of it before

c. ☐ Don't know how to go about it

d. ☐ Cancer risk is high only for the old

e. ☐ I did not think cancer is for the young

f. ☐ Never felt the need

g. ☐ I am not aware of the proper techniques

14. Have you ever practiced Breast Self- Examination (BSE)?

Yes ☐

No ☐

15. If Yes, when was the last time you practiced BSE?

☐ Less than six months

☐ Greater than six months

☐ More than a year ago

16. When is it suitable to perform BSE?

- ☐ Any day one wants to
- ☐ A week after menstruation
- ☐ A week before menstruation
- ☐ During menstruation
- ☐ Don't Know

17. Can BSE help in the early detection of Breast cancer?

Yes ☐

No..... ☐

Section D: Attitude of students towards breast cancer

	QUESTION	AGREE	DISAGREE	UNSURE
18	Breast Cancer patients should be isolated	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19	Breast Cancer is a punishment from God	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20	You can detect breast cancer by yourself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21	You are scared that you will detect breast cancer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22	Screening for abnormalities through BSE is important and useful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23	Breast screening campaigns motivates you to detect breast cancer by yourself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

24	It is embarrassing to practice BSE in that, other people see or touch the breast to detect the disease	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25	Doing BSE is a waste of time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26	Only old women should do BSE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

