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COLLEGE OF HEALTH SCIENCES
UNIVERSITY OF GHANA, LEGON**

**BREAST CANCER SCREENING AMONG FEMALE PERSONNEL OF THE
GHANA ARMED FORCES, ACCRA**



PRESENTED BY

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DECLARATION

I hereby declare that apart from specific references which have been acknowledged this research work is my own work put together.

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Date

Signature

Dr. E. T. Maya
(Supervisor)



Date

DEDICATION

I dedicate this work to my husband, Joseph Kelvin Merdiemah, and kids, Kelvin Ackah Merdiemah, Ariza Merdiemah and Joseph Kabenlah Nyamelewoke Merdiemah for their unflinching love, encouragement and prayers in my academic pursuits.



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Scholarship is a comparative enterprise, and I have made use of materials of many publications in conducting this research for which I acknowledge their influence on my research. I am indebted to the almighty God for making it possible for me to complete this research. I am also indebted to my supervisor, Dr. E. T. Maya and my Head of Department, Professor Augustine Ankomah for their invaluable contribution, guidance, direction, corrections, motivation and dedication during the supervision of this work.



ABSTRACT

General objective: The main objective of the research was to determine the level of knowledge and determinants of Breast Cancer screening among female personnel of the Ghana Armed Forces (GAF).

Methodology: Descriptive survey involving the use of questionnaire was used to obtain quantitative data from the respondents. A sample size of two hundred and ninety nine (299) female personnel of the GAF was used for the research using the stratified sampling method. The statistical package for Social Sciences was used to process the data. The data analysis involved the use of percentages and frequencies and a Test of Association (chi square test) at a 0.05 significant level and logistic regression

Results: All the respondents who were given questionnaires had some knowledge on breast cancer. Most of the respondents know about Breast Self-Examination. The findings also revealed that signs and symptoms of breast cancer include lumps, breast pain, swelling of breast, dimpling of skin, bloody nipple discharge, redness of breast skin, skin irritation, nipple itchiness, lymph nodes under the arm, pulling in of nipple, and nipple that turns inward. Also although married women and women with tertiary education are more likely to go for breast screening, these factors are not statistically significant

Conclusion: Female personnel of the GAF have general knowledge about breast cancer. Also, most of them know the signs and symptoms of breast cancer. Breast Self-Examination (BSE) method is the most common screening method used. Also, marital status and educational level do not significantly affect the probability of screening for breast cancer.

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LIST OF ABBREVIATIONS

ACS	American Cancer Society
AIDS	Acquired Immune Deficiency Syndrome
BSE	Breast Self-Examination
CBE	Clinical Breast Examination
GAF	Ghana Armed Forces
HIV	Human Immunodeficiency Virus
USA	United States of America
SPSS	Statistical Package for Social Sciences

TERMS AND DEFINITIONS

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.

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.

Signs – Visible indications which is an indication of a disease detectable by a medical practitioner even if not apparent to the patient.

Symptoms – Features which indicate a condition of a disease, in particular one apparent to the patient.

Early Signs and Symptoms – In relation to Breast Cancer therefore reflect the usual indications that create the awareness of the emergence of the disease.

CHAPTER ONE

INTRODUCTION

1.1 Background

Breast cancer is a malignant tumor that starts in the cells of the breast. It is the most common cancer and is the leading cause of deaths due to cancer in the world (Epstein, 2005). Even though it affects women mainly, men can also be affected. Various methods have been adopted by policy to help prevent and manage the condition. However, there is the general concern that despite increasing expenditures, the condition keeps spreading. The failure of efforts to manage Breast Cancer is attributed to dietary factors, screening methods like use of mammography and diagnostic ineffectiveness in younger women (Epstein, 2005).

The American Cancer Society (ACS) (2004) indicates that Breast Cancer can be separated into several types based on the way the cancer cells look under the microscope. In some cases a single breast tumor can be a combination of these types or be a mixture of invasive and in situ cancer. In some rarer types of Breast Cancer, the cancer cells may not form a tumor at all. Breast Cancer can also be classified based on proteins on or in the cancer cells, into groups like hormone receptor-positive or triple-negative.

Knowledge of the signs and symptoms of Breast Cancer is significant for women. The types of breast cancer screening methods are Breast Self-Examination (BSE), Clinical Breast Examination (CBE) or use of a Mammogram. The ACS for example indicates that

the widespread use of screening mammograms has increased the number of breast cancers found before they cause any symptoms. It adds that the most common symptom of breast cancer is a new lump or mass and that a lump that is painless, hard, and has uneven edges, is more likely to be cancer. However, it recognizes that some cancers are tender, soft, and rounded or even painful, therefore it is imperative to visit a medical facility for specialist attention when anything new or unusual is found on the breast checked by a doctor. It has been identified that sometimes Breast Cancer can spread to lymph nodes under the arm or around the collarbone and cause a lump or swelling there, though any tumor in the breast tissue may not be large enough to be felt.

Breast Cancer was the leading cancer sited in women in all countries of Europe in 2012 (Ferlay, Steliarova-Foucher, Lortet-Tieulent, Rosso, Coebergh, Comber, Forman, Bray, 2013). The researchers also indicate that high incidence rates were estimated in Western European countries (notably in Belgium, France and The Netherlands), in Northern Europe (particularly in the United Kingdom) and in the Nordic countries such as Denmark, Iceland and Finland. On the Other hand incidence rates in Eastern European countries such as the Ukraine and Moldova were much lower (Ferlay, Steliarova-Foucher, Lortet-Tieulent, Rosso, Coebergh, Comber, Forman, Bray, 2013).

In Ghana Breast Cancer has become a concern because of the health implications on women who are most affected. Cohort research conducted between 2004 and 2009, among 19,423 patients observed that 330 (1.7%) were diagnosed as having histological proven breast cancer (Ohene-Yeboah & Adjei, 2012). The researchers further observed that a palpable breast lump was detected in 248 patients (75.2%), 281 patients (85.2%)

presented with Stages III and IV, 271 (82.1 %) invasive and 230 (85.2%) high grade carcinomas. Other observations were that Oestrogen and progesterone receptors were positive in 32 and 9 cases respectively and Her-2 protein were also positive in 11 cases. These statistics and the general concerns about Breast Cancer caught the attention of the researcher thereby influencing the decision to conduct this study which focuses on Breast Cancer Screening among Female Personnel of the GAF.

1.2 Problem Statement

The GAF is made up of male and female personnel who are employed in various roles. The training requirements for female personnel especially the cost of training is the same as for the male counterpart. The cost of training makes it imperative that health should be taken seriously as any health issues impact the performance and moral as well as the investment of the state. To cater for the health needs therefore the GAF has medical facilities for its personnel. It is expected that personnel should freely access these facilities which are spread in the areas where personnel are located especially in Kumasi, Takoradi, Ho, Tamale, Tema, Sunyani and in Accra where 37 Military Hospital (which is a referral centre) is located for management of all ailments including breast cancer. The GAF has various public health programmes on conditions like HIV/AIDS and run routine checks for personnel to ensure that they are fit for work. However, there is no programme on routine Breast Cancer screening at the Military Public Health facilities. Though empirical evidence is not available, the general believe is that the level of knowledge and practices of female personnel in GAF somehow affect their accessing breast cancer screening. Additionally, various studies by researchers show that women have poor knowledge about the risk factors associated with breast cancer (Akhigbe and

Omuemu, 2009; Seah and Tan, 2007; Opoku, Benwell and Yarney 2012 and Kwawu, 2010). Consequently, this study examines breast cancer screening among female personnel of the GAF, Accra.

1.3 Conceptual Framework of Breast Cancer Screening

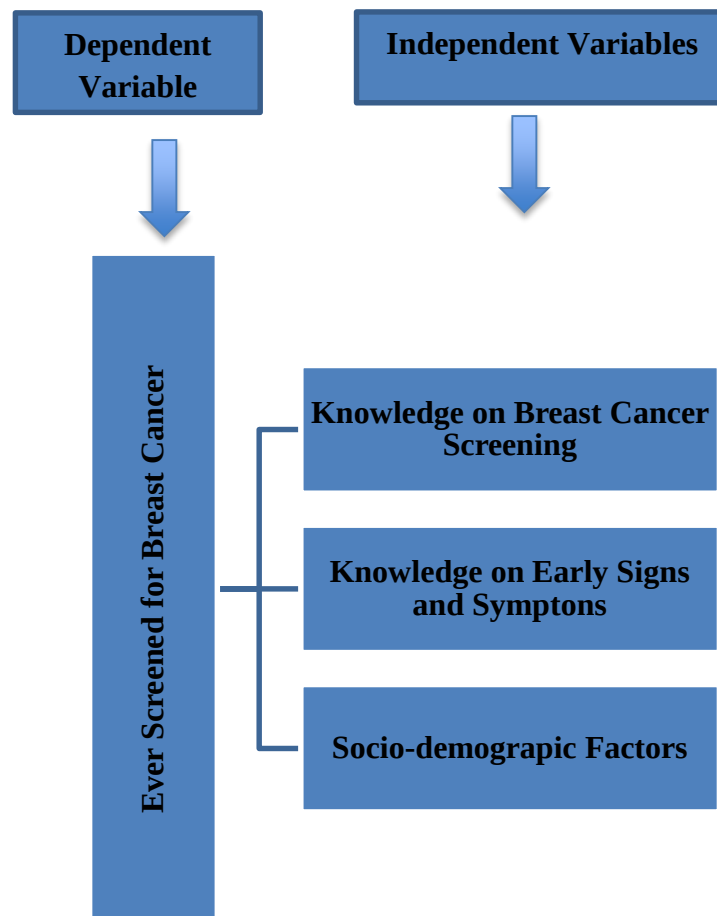


Figure 1.1: Conceptual Framework of Breast Cancer Screening

Source: Authors own construct

1.3.1 Knowledge on Breast Cancer Screening

Studies by Ibrahim and Oludara (2012) and Okobia¹, et al. (2006) show that knowledge on breast cancer screening has an effect of the probability of screening for breast cancer. Knowledge is defined as 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 (Concise Oxford Dictionary, 2006). For this variable in relation to 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 (Concise Oxford Dictionary, 2006). This variable thus focuses on testing respondents' knowledge of Breast Cancer screening methods, the time for the screening and the age for the screening.

1.3.2 Knowledge on Early Signs and Symptoms of Breast Cancer

A study by Paul, et al (1999) revealed that knowledge on early signs and symptoms influences the tendency of going for breast screening examination. Signs are visible indications and could be explained in medicine as indication of a disease detectable by a medical practitioner even if not apparent to the patient (Concise Oxford Dictionary, 2006). Symptoms in medicine are features which indicate a condition of a disease, in particular one apparent to the patient (Concise Oxford Dictionary, 2006).

Early signs and symptoms in relation to Breast Cancer therefore reflect the usual indications that create the awareness of the emergence of the disease. The researcher's focus is to find out the level of knowledge of respondents on early signs and symptoms in relation to breast cancer screening. For example it will help to establish respondents' knowledge on the conditions of the nipple, lump in the breast and its association with Breast Cancer.

1.3.3 Socio-demographic Factors

The socio- demographic factors considered for the study includes age levels, marital status, rank, level of education and religion. A study by Ibrahim and Oludara (2012) and Okobia1, et al. (2006) reveal that these factors have an effect on breast cancer screening. That is there is an association between these variables and the likelihood of going for breast cancer screening.

1.3.4 Ever Screened for Breast Cancer

The focus of the researcher was to use the three independent variables; Knowledge on Breast Cancer Screening, Knowledge on Early Signs and Symptoms and Socio-demographic Factors to test whether respondents had ever been screened for Breast Cancer. This helped the Researcher to draw conclusions on the level of knowledge of Breast Cancer Screening among female personnel of the GAF.

1.4 Justification

According to Kavar (2012), breast cancer has become a health concern affecting women in their reproductive years. According to Akhigbe, & Omuemu, (2009), whether or not women will go for Breast Cancer screening depends on the knowledge of the screening methods. Likewise, the burden associated with Breast Cancer is enormous because of cost of management and high mortality. Early detection of breast cancer however can help in the management to help reduce its impact on the individual. The results of this research will help determine the knowledge on breast cancer screening among female personnel of the GAF. Also, the research sought to determine the knowledge and practices in respect of Breast Cancer screening and it is believed the findings could

provide information to decision makers, policy planners and implementers to ensure that female personnel of GAF and women in general benefit from facilities available at health institutions for screening and management of Breast Cancer.

1.5 Objectives

1.5.1 General Objective

The general objective of the study is to determine the level of knowledge and determinants of Breast Cancer screening among female personnel of GAF.

1.5.2 Specific Objectives

The study specific objectives:

- i. To determine the knowledge of breast cancer among female personnel of the GAF;
- ii. To determine the proportion of female personnel who have ever gone for Breast Cancer screening;
- iii. To determine the relationship between Breast Cancer screening and socio demographic factors.

1.6 Research Questions

- i. What is the knowledge of breast cancer among female personnel of the GAF?
- ii. What proportion of female personnel of the GAF have ever gone for Breast Cancer screening?

- iii. What is the relationship between Breast Cancer screening and socio demographic factors?

1.7 Significance of the Research

The result of the research is expected to determine the knowledge of breast cancer among female personnel of the GAF inform management of GAF and the health promotion team on the awareness level amongst the personnel. Likewise the results of the research are expected to provoke thinking on the need for routine Breast Cancer screening among female personnel of the GAF. The results of the research will also act as a source of reference for students and researchers who want to carry out further studies on this field.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter reviews relevant literature on breast cancer, knowledge of women about breast cancer and breast cancer screening among women. According to Marshall and Rossman (2006) literature review is a comprehensive and logical discussion of related literature which leads to the development of a logical framework for the research and thus literature review is placed within a tradition of enquiry and context of related studies. The literature that is reviewed in this chapter will assist in the development of a theoretical basis that will help in addressing the research questions and objectives outlined in the first chapter of the research.

2.1 Incidence of Breast Cancer

Breast cancer refers to cancer that develops from breast tissue, usually from the inner lining of milk ducts or the lobules that supply the ducts with milk (Amosu, Degun, Thomas & Babalola, 2011). Cancers that develop from the ducts are referred to as ductal carcinomas, and those developing from the lobules are referred to as lobular carcinomas (Amosu et al., 2011). It is the leading cause of mortalities due to cancer in women worldwide (Amosu et al., 2011; Al Junaibi & Khan, 2011; Yilmaz, Bebis & Ortabag, 2013). Over 1.15 million women are diagnosed with breast cancer all over the world and more than a half million die from this disease (Al Junaibi et al, 2011). The main reasons for the escalating mortalities due to breast cancer are lack of awareness and late diagnosis of disease (Al Junaibi et al, 2011). It is also the leading type of cancer in Ghana (Badoe &

Baako, 2000). It contributes to 15.4% of all malignancies in Ghana and it is estimated that this number will increase (Clegg-Lampsey & Hodasi, 2007). It is also a common cause of hospital admissions and mortality among women in Ghana (Ohene-Yeboah & Adjei, 2012).

It can affect both males and females, but it mostly affects females. In Kumasi about 70% of breast cancer is in women (Laryea, et al, 2014) and their mean age of diagnosis is 53 years. Breast cancer is rare before the age of 30, but its incidence starts to rise after this age and there is a marked increase after menopause. The incidence of breast cancer peaks between 35 and 45 years in West African women, this is 10-15 years earlier than that for western countries (Fregene & Newman, 2005).

The incidence of breast cancer is highest in Northern Europe and North America, intermediate in Mediterranean countries and South America, and lowest in Asia and Africa (Parsa, Kandiah, Abdul Rahman & Zulkefli, 2006). Although breast cancer is often seen in developed countries, developing countries record higher mortalities rates as compared to developed ones (Yilmaz, Bebis & Ortabag, 2013). Clinical studies conducted in Sub-Saharan Africa show that breast cancer in native black African populations is usually severe and prognosis is usually unfavourable (Gukas, Jennings, Mandong, Igun, Manasseh, Ugwu & Leinster, 2005; Ohene-Yeboah et al, 2012). These studies identified some features that could account for high breast cancer mortalities in native black African women as compared to women from other parts of the world; some of the features that were found were; young age at presentation, advanced stage of disease

during diagnosis, large size of tumour, high grade histologic subtypes and low rate of hormone receptor positivity (Gukas et al., 2005; Clegg-Lampitey et al, 2007).

Studies suggest that the disease may be seen as aggressive and having unfavourable prognosis in African women because they report at late stage of the disease and this may be mainly due to lack of awareness of the disease as well as screening methods not being readily availability (Awadelkarim, Arizzi, Elamin, Hamad, De Blassio, Mekki, Osman, Biunno, Elwali, Mariani- Costantini & Barberis, 2008; Adebamowo, Famooto, Ogundiran, Aniagwu, Nkwodimmah & Akang, 2008). In Ghana, an estimated 60% of patients with breast cancer report with late stage disease (stage III and IV disease), and they usually report eight to ten days after they develop symptoms (Clegg-Lampitey et al, 2007; Clegg-Lampitey et al, 2009). Edmund, Naaeder, Tettey and Gyasi (2013) concluded that more than three decades after the first publication of breast cancer in Ghanaian women, patients were still presenting with large clinically and histologically advanced invasive cancers. From the finding of the research by Clegg-Lampitey et al (2009), the causes of delayed presentation were previous medical consultations, ignorance, and fear of mastectomy, herbal treatment, prayer/prayer camps and financial incapability.

2.2 Factors Associated with Breast Cancer

The female gender is a major risk factor associated with breast cancer and increasing age (especially after 40 years). Breast cancer has also been found to be associated with conditions that increase oestrogen especially oestradiol levels in which include; early onset of menarche, late onset of menopause, obesity in postmenopausal women (Amosu et al, 2011).

Other factors that increase the risk of breast cancer include; alcohol intake, oral contraceptives and hormonal therapy, tobacco use, dietary iodine deficiency, high-fat diet obesity, personal and family history of breast cancer, family history of ovarian cancer, environmental factors such as tobacco use, radiation and shift work (Amosu et al, 2011). Mutations in certain genes (BRCA1 and BRCA2 mutations) have been associated with an increased risk of getting breast cancer (Amosu et al, 2011). Also, a study by Badoe and Baako (2008) revealed that a woman's whose first degree female relative has breast cancer is twice as likely to develop breast cancer as compared to other women. In addition a woman who has cancer in one breast has a greater chance of developing cancer in the other breast.

However, the following factors seem to decrease the risk; childbearing (especially early first birth and a larger number of births), breastfeeding and physical activity (Amosu et al, 2011). Breastfeeding has been shown to cause a mild reduction in the risk of women developing breast cancer especially if it is done for 18 months to 24 months (Huo, Adebamowo, Ogundiran, Akang, Campbell, Adenipekun, Cumming, Fackenthal, Ademuyiwa, Ahasan & Olopade, 2008). During breast feeding there is high serum prolactin levels which leads to suppression in ovulation and menstruation, hence oestrogen levels are relatively lower during this period.

About 75% of breast cancers are dependent on oestrogen and progesterone for their growth; hence the lower oestrogen levels during this period are beneficial (Badoe & Baako, 2008). Studies have suggested that exercise during the youth period may provide

lifelong protection against breast cancer, however exercising during adulthood may also lower breast cancer risk (Reigle, Wonder & Beverly, 2009; Kwawu, 2010).

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

Usually the first reported symptom of breast cancer is a lump in the breast which feels different from the rest of the breast tissue; this is reported in more than 80% of women who have been diagnosed with breast cancer (Amosu et al; 2011). These lumps are usually painless and most often located in the upper outer quadrant of the breast (Badoe & Baako, 2008). Most cancers are painless; however breast pain may be another symptom of breast cancer though. In a study at a Teaching Hospital in Accra by Clegg-Lampitey et al (2007), revealed that out of the 447 patients who presented with breast pain; breast cancer was found in 1.24% of those who presented with breast pain as the only symptom. Cancer cells may spread through the lymph vessel into the lymph nodes supplying the breast, especially the axillary lymph nodes and cause them to become palpable during examination.

Other clinical features of breast cancer includes; changes in breast size or shape, skin dimpling (tethering), nipple inversion, the skin of the affected breast looking like that of orange (peau d'orange) or spontaneous single-nipple discharge (Badoe & Baako, 2008). In a study conducted by Ohene-Yeboah M. & Adjei E. (2012) at the Komfo Anokye Teaching Hospital in Kumasi, Ghana, breast cancer was diagnosed 25% of women presenting with the sole complaint of bloody nipple discharge. When the disease is advanced, it may spread to other organs, especially the lungs and the bone and cough or difficulty in breathing or bone pain and fractures respectively (Badoe & Baako, 2008).

Some forms of breast cancer pose significant diagnostic challenge to clinicians; they are inflammatory breast disease and Paget's disease of the breast. The clinical features of inflammatory breast disease bear resemblance to that of mastitis (which is a benign breast condition) and can easily be diagnosed as such. These symptoms are; pain, swelling, nipple inversion, warmth and redness throughout the breast, and peau d'orange (Badoe & Baako, 2008; Amosu et al, 2011).

Paget's disease of the breast presents as eczema-like skin changes which include redness and mild flaking of the nipple skin. As the disease progresses, symptoms like tingling, itching, increased sensitivity, burning, and pain may develop. It may also be associated with nipple discharge and a lump in the breast (Badoe & 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 been used to detect cancers before to confirming with a biopsy to obtain the histopathology of the breast tissue (Clegg-Lampitey et al, 2009).

Treatment modalities include surgery, drugs (hormonal therapy and chemotherapy), and radiation. Prognosis and survival rate varies greatly depending on the type of cancer and the stage of the disease; thus with the best of treatment and depending on stage of the disease, 10-year disease-free survival varies from 98% to 10%; however five-year survival rate in Sub-Saharan Africa is less than 10% compared with over 70% in Western Europe and North America (Amosu et al, 2011).

2.4 Knowledge of Breast Cancer among Women

Globally prior to the 20th century, there was great fear surrounding breast cancer and issues pertaining to breast cancer were rarely discussed. This was partly due to fact that there was little that could be done to increase the chances of survival for a woman diagnosed with breast cancer. However with the advancement in surgery and improvement in long-term survival rates, women have begun to raise awareness about breast cancer.

A study conducted by Kwawu (2010) among female personnel within all units of the Ghana Armed Forces (GAF) in the Greater Accra Region, a total of 300 female personnel participated in the study, 78% of respondents had poor knowledge about the risk factors associated with breast cancer. Also, the respondents knew that a woman's risk of developing breast cancer increased with age and a positive family history of breast cancer respectively. However, respondent's knowledge about warning signs and symptoms of breast cancer was generally good, 2/3 had satisfactory knowledge about the warning signs and symptoms of breast cancer. Also, about 73% and 75% knew that an unusual painless breast lump and an unusual nipple discharge were warning signs breast cancer respectively.

Nipple retraction was the least known symptom with only 41.7% aware of it as a symptom. There was a significant association between one's level of education and their knowledge about the signs and symptoms of breast cancer. One's rank was also significantly associated with knowledge about the risk factors of breast cancer.

A study by Opoku, Benwell and Yarney (2012), to find out the knowledge, attitudes, beliefs, behaviour and breast cancer screening practices in Accra and Sunyani in Ghana using questionnaires to interview a total of 474 women and semi-structured interviews for 10 breast cancer patients; 10 breast clinic attendants; 3 Oncology Consultants and 2 herbalists, it was found that the respondents displayed knowledge deficit about breast cancer. It was also observed that the respondents had insufficient knowledge about breast cancer and breast cancer screening due to the poor appreciation of the risk factors, clinical features and high level of misconceptions and misinformation. However, higher levels of education were associated with higher levels of knowledge about breast cancer. Some of the misconceptions about breast cancer identified in the study were; fear of the disease due to its association with death; denial and guilt; as well as supernatural attributes.

Bello, Olugbenga-Bello, Oguntola, Adeoti and Ojemakinde (2011) conducted a study to determine the Knowledge and practice of breast cancer screening among female nurses and lay women in Osogbo, Nigeria, on the risk factors of breast cancer. Generally, the nurses showed a better knowledge. Similar results were obtained when knowledge on the presenting symptoms and signs, and management of breast cancer. Hence it can be concluded that knowledge about breast cancer among women who are not clinicians is generally very low.

A study by Akhigbe and Omuemu (2009) carried out among female health workers in the two major government health institutions in Nigeria. A greater proportion of the respondents had very poor knowledge about risk factors for breast cancer (55%) which

was surprisingly high since they are health workers. The awareness of mammography as a diagnostic method was very high (81%), but there was very low knowledge of mammography as a screening method. About half of the respondents (45.5%) had low knowledge about Breast Self-Examination (BSE) as a screening method. They suggested the need for regular update courses for health workers concerning breast cancer education.

Seah and Tan (2007) conducted a study among seven hundred and sixteen (716) nurses in a General Hospital in Singapore and it was observed that; there were high scores for general knowledge and natural disease progression and fair for knowledge of symptoms and treatment. However, the scores dropped when it came to knowledge of risk factors and screening. They also observed that the nurses held several common misconceptions held by the public but those who had managed breast cancer patients had higher total scores. However, they concluded that nurses working in a general hospital had good knowledge of breast cancer progression, average understanding of symptoms and treatment, but lacked knowledge in risk factors and screening.

A study by Odusanya (2001) to examine the knowledge, attitudes, and practices of female schoolteachers concerning breast cancer, revealed that 85% of the respondents knew breast cancer was a serious disease, but only 53% knew that a breast lump was the most commonly recognized sign. The level of knowledge about the other symptoms was even lower. Only 14% knew the methods of diagnosis, and knowledge of risk factors was also poor. Only 25% of the respondents were categorized as having satisfactory knowledge of breast cancer which is quite low.

Similarly, a study by Yilmaz, Bebis, and Ortabag (2013) to determine the awareness of and compliance with breast cancer screening among Turkish residential women revealed that 80% (n=256) of the participants had been informed about breast cancer; this information was most often obtained from medical staff (48%) or the Internet (13%). The women included in the study chose the existence of a mass in the breast as best indicator of breast cancer (90% of the respondents) they chose the least effective indicator as an abnormal swelling of the arm (14% of the respondents). The study also showed a statistically significant relationship between knowledge of breast cancer and screening and undergoing regular screening tests was. Among the women had knowledge about breast cancer, 28% performed BSE, 22% had CBE and 16% underwent regular mammograms.

In a quantitative telephone survey exploring breast cancer knowledge and perception of a sample of 2985 Australian women, conducted by Paul, Barrot, Redman, Cockburn and Lowe (1999), only 33% of the respondents were able to give an approximation of the correct estimate of the incidence of breast cancer in Australia. Also, only 5% of women considered age as a risk factor, however a family history of breast cancer was known by half of the respondents as a risk factor 49%.

In a qualitative study conducted by Johnson and Dickson-swift (2008) among young women in the USA yielded findings that showed that the respondents had very low level of knowledge and understanding of breast cancer. Only two main risk factors were identified in the study and these were; age and family history of breast cancer. The researchers were of the view that the young women included in the study felt comfortable

mentioning increasing age as a risk factor because it made them secure since they considered themselves at being at a relatively low risk .

2.5 Breast Cancer Screening Practices among Women and associated Factors

Breast self-examination (BSE), clinical breast examination (CBE) and mammography are the most commonly known and used screening programmes used globally (Yilmaz, 2010). A combination of the three screening methods is essential for the early detection of breast cancer (Ozmen, 2011). Early detection of breast cancer improve the quality of screening activities; and enhanced treatment have been found to decrease mortality rates by 25-30% (Mai, Sullivan & Chiarelli, 2009).

According to the recommendations by the American Cancer Society (ACS), women younger than 40 years must perform BSE every month; have CBE by a physician every three years and an annual mammogram after age 40. However mammography is recommended in women below 40 years who have high risk for the development of breast cancer (ACS, 2004).

Women who conduct regular BSE are able to detect breast cancer in earlier stages compared to those who do not. Also, 80% of the masses in breasts are found during BSE (Weiss, 2003). BSE is also associated with a decrease in mortalities due to breast cancer (Ozmen, 2011). Odusanya (2001) observed that among 200 schoolteachers randomly selected from 12 schools in Lagos that, BSE was practiced by 62% of respondents; 11% practiced it on a monthly basis, however only 25% were possessed sufficient knowledge about the procedure. Seah and Tan (2007) in their study conducted among nurses

Singapore observed that only 63% of the respondents did regular BSE; also nurses who had managed breast cancer patients were more likely to do regular BSE. This is quite alarming since health workers are supposed to serve as advocates of breast cancer, train women on BSE as well as conduct CBE. Also, a study by Opoku et al, (2012) revealed that self-reported breast cancer screening rate was poor but indicated that higher levels of education was associated with better appreciation of the disease.

CBE is helpful especially in cases where the breasts are large, breasts that cannot be screened by mammography and in cases where masses are peripherally located (Yilmaz, Bebis & Ortabag, 2013). It has been observed that the rate of detection of cancer of the breast increases by 5-20% when CBE is combined with mammography (Yilmaz, Bebis & Ortabag, 2013). CBE offers an additional incremental benefit because it is able to detect some cancers missed by mammography (Clegg-Lampsey et al, 2009).

There are controversies about the value of each of the methods employed in the screening of breast cancer but evidence favours screening by mammography in women aged 40 years and above (Clegg-Lampsey et al, 2009). Mammography is also the most effective community-based screening method that aids in the early detection of breast cancer (Yilmaz, Bebis and Ortabag, 2013). Brakohiapa et al (2013) noticed the larger number of screening mammographic evaluations conducted for asymptomatic females suggests that educational programmes on early breast cancer detection has a positive impact on women's willingness to undergo mammographic screening. Hence it is quite discouraging that in Seah and Tan's (2007) study among nurses Singapore observed that only 35% of the respondents had gone for a screening mammogram.

In the United States, it is recommended that women undergo annual screening mammograms commencing from the age 40 (Amin, Shriver, Henry, Lenington, Peoples, & Stojadinovic, 2008). Even in the USA, the percentage of women who abide by the screening guidelines of having annual mammogram starting at age 40 is significantly low 25% (Amin et al. 2008).

Factors related to compliance with mammographic screening guidelines include race or ethnicity, perceived risk of developing breast cancer, participation in other health-related behaviors, and access to mammographic screening centers, educational level, income, and cost of mammogram (Amin et al, 2008). Mortality from breast cancer can be drastically reduced by improving education to increase motivation for screening participation.

The ACS estimates that mortalities due to breast cancer deaths could be decreased by as much as 48% through timely mammographic screening among women starting at age 40, also regular mammographic screening helps in the early detection of breast cancers and hence helps cut down on cost and treatment is less aggressive and less expensive treatment with attendant improvement in quality-of-life (Amin et al, 2008). However, there is no evidence to suggest that the practice of BSE decreases mortality due to breast cancer; rather it lead to an increase in the number of biopsies for benign breast disease(Clegg-Lamptey et al, 2009). In Ghana, there is no systematic national screening programme that involves mammography to women at risk from breast cancer. However, some nongovernmental organisations and other groups who organise breast cancer awareness talks teach women BSE and offer CBE as a (Clegg-Lamptey et al, 2009).

A study by Kavar (2012) among two groups of Jordanian women who provided personal information regarding breast cancer screening participation and their perceived negative influences towards screening, the decision to participate in breast cancer screening was influenced by cultural negative influences and by clinicians' advice. The findings indicated cultural misconceptions about breast cancer screening existed.

In a study conducted in Turkey to determine the awareness of and compliance with breast cancer screening among Turkish residential women, a total of 321 women were used. The finding also revealed that women who do not have information about breast cancer and the women who smoke have a higher risk of not having BSE. Hence the study concluded that it is essential to determine health beliefs and breast cancer risk levels of women to increase screening and hence early diagnosis of breast cancer. Also, women's health beliefs must serve as a good guide for planning health education programmes (Yilmaz, Bebis & Ortabag, 2013).

In a study conducted to determine the knowledge, attitudes and perceptions of breast cancer among female soldiers of the Ghana Armed Forces in the Greater Accra Region, the results revealed that; only a third of respondents were able to tell the correct sequence of steps in breast self-examination; however only 20.3% actually perform BSE monthly (Kwawu, 2010).

In a study by Amin et al (2008) to examine mammographic screening compliance among young military healthcare beneficiaries and to examine factors related to one time and

recent mammographic compliance, the medical records of 1,073 subjects were reviewed. The results showed that 90.4% of women studied had at least one mammogram. Higher rates of ever having mammography were observed in women with family history of breast cancer. The study concluded that one time screening participation for women whom cost and access barriers to breast cancer screening were removed, but were lower with regard to having a recent mammogram.

CHAPTER THREE

METHODOLOGY

3.0 Research Type and Design

A cross-sectional study design was employed.

3.1 Research Area

The research area is 5 Garrison of the Ghana Armed Forces (GAF) in Accra. The 5 Garrison is made up of all military installations in Accra excluding Tema. The installations include all military institutions which could also be referred to as Units. These are three Formation Headquarters namely Headquarters Southern Command, Support Services Brigade and Military Academy and Training Schools. The others include 5 Infantry Battalion, 64 Infantry Regiment, Base Ordnance Depot, Base Workshop, 48 and 49 Engineer Regiments, Supply and Transport and Defence Mechanical Transport Battalions. Kofi Annan Peacekeeping Training Centre, Ghana Armed Forces Command and Staff College, 37 Military Hospital and all the Headquarters of Ghana Army, Ghana Navy and Ghana Air Force are also located in 5 Garrison. 37 Military Hospital is the main referral hospital within the Garrison and there are Medical Reception Stations with two in Burma Camp and one in Kpeshie.

3.2 Description of subjects involved in the Research

The research population were female personnel of GAF.

3.3 Variables

3.3.1 Dependent Variable

The dependent variable is ever screened for breast cancer.

3.3.2 Independent Variable

The independent variable is as follows:

- i. The Knowledge of breast cancer screening;
- ii. Knowledge on early signs and symptoms; and
- iii. Socio-demographic factors.

3.4 Research Population and Sampling

The target population was 1,108. Based on this population size, the minimum sample size was calculated using the formula below:

$$n = N / (1 + N[e^2])$$

Source: Galero-Tejero (2011).

Where n is the sample size, N is the population size, and e is the level of precision.

$$n = N / (1 + N[e^2]) \qquad n = 1108 / (1 + 1108[0.05]^2) = 293.9$$

Thus, using a population size of 1108 (population GAF women considered), the appropriate sample size for this study should not be less than approximately 294 as indicated by the sample size calculation. A non-respondent rate of 1.6% was factored in to give the required sample size of 299. Non-response bias occurs in statistical surveys if the answers of respondents differ from the potential answers of those who did not answer. A low non response rate (1.6%) was chosen because the researcher is a worker at the 37 Military Hospital as such could elicit more responses from the respondents.

3.4.1 Sampling Method

The research used stratified sampling method. In the GAF as in all Armed Forces there are two distinct groups which are officers and other ranks. While officers have broad and advanced military training, the other ranks are given basic training. The two groups also have distinct orientation. It is in line with these that the population which also consists of officers and other ranks were divided into two distinct groups as officers and other ranks. This distinction helped the researcher to stratify the population appropriately. The respondents were selected from each strata using convenience sampling method. This sampling method helped to select respondents who were ready and willing to take part in the research. The use of the stratified sampling helped to have a heterogeneous respondents group.

3.4.2 Data Collection Tools and Techniques

Permission was obtained from the management of the GAF prior to the data collection. The questionnaire was the data collection tool used for the research. The questionnaire comprised of closed ended questions. The questionnaire was divided into sections. Section A focused on obtaining demographic data from the respondents while the subsequent questions were aimed at answering the research questions. The questionnaires were given to the respondents during their coffee break to give them ample time to fill the questionnaires. Thus the questionnaires were self-administered. The various objectives of the research were explained to them before they filled the questions.

3.5 Pre-Testing

Pre-testing was done at Cantonments Police Barracks which has similar characteristics like the military barracks. The female personnel of the Ghana Police service were used as the respondents. A convenience sampling method was used to select 15 Police women who were administered questionnaires. Their views on the questionnaire helped to correct inconsistencies in the questionnaire before administering them.

3.6 Data Processing and Analysis Plan

According to Bryman and Bell (2003) data analysis refers to a technique used to make inferences from data collected by means of a systematic and objective identification of specific characteristics. The data gathered was entered into the data base of the Statistical Package for Social Sciences (SPSS) version 16 for analysis and Excel was used to draw the graphs. Data analysis involved working to uncover patterns and trends in data sets and the interpretation involved explaining the patterns and trends (Egger and Capri, 2008).

The research made use of percentages and frequencies in the data analysis process. Also the statistical analysis included a test of association was done using chi square test with $P\text{-value} < 0.05$ deemed statistically significant. The chi-square statistic provides a statistical test for ascertaining whether an association exists between two variables (Diener-West, 2008). The data was presented using tables and graphs. The logistic regression was used to examine the relationship between the demographic characteristics and breast cancer screening. The odds ratio and the chi square test statistic were assessed at a confidence interval of 95%. A $p\text{-value} \leq 0.05$ imply significance while a $p\text{-value} > 0.05$ imply non significance.

3.7 Quality Control

To ensure accurate data was derived, the questionnaires were given to other researchers prior to its use to ensure that the questions were well structured to appropriate responses for the research. Pre-testing was done in a similar environment. Thus, the police women in the Police Barracks were made to answer the questionnaire and identify all ambiguous or difficult to answer questions. Amendments were then made to those questions. The research assistants were trained to help with data collection. They were given a brief tutorial on the objectives of the research and the problem statement.

3.8 Ethical Consideration

Approval was obtained from Ethical Review Committee of the Ghana Health Service. The GAF (Personnel Administration) and 37 Military Hospital Institutional Review Board were requested for permission to administer questionnaire to collect data for the study. Also to ensure anonymity and confidentiality, respondents were not to write their names.

The questionnaires used by the research were under the care of the principal investigator. The hard copy of the data was under lock while the soft copy was saved on a computer under a password known only to the principal investigator. Written informed consent was sought from research respondents before data was collected from them.

CHAPTER FOUR

RESULTS

4.1 Introduction

This chapter presents the results of the research. Thus the demography of the respondents is first presented, followed by a presentation of the results addressing the specific objectives of the research.

4.2 Demography

Table 1 shows the demographic characteristics of the respondents.

Table 4.1: Demographic Distribution of Respondents

	Frequency (n=299)	Percentage (%)
Age		
20-29 years	183	61.2
30-39 years	96	32.1
40-49 years	9	3.0
50-59 years	11	3.7
Marital Status		
Married	132	44.1
Single	149	49.8
Divorced	11	3.7
Separated	7	2.3
Rank		
Officer	37	12.4
Other Rank	262	87.6
Level of education		
SHS/SSS	71	23.7
‘O’ Level	6	2.0
‘A’ Level	6	2.0
Tertiary	204	68.2
Others (certificate, professional)	12	4.0
Religion		
Christianity	266	89.0
Islam	33	11.0

Most of the respondents were (61.2%) aged 20-29 years, and the lowest (3%) belong to age group 40-49. Most of the respondents (49.8%) were single and a few (2.3%) were separated. In addition, the results revealed that only a few of the respondents were officers, and majority (68.2%) has had tertiary education. The results also shows that majority (89) of the respondents were Christians.

4.3 Knowledge of Breast Cancer among Respondents

To examine the knowledge of respondents about breast cancer, they were asked if they have heard about breast cancer before, their knowledge about the signs and symptoms of breast cancer and the various screening methods. The results revealed that when the respondents were asked if they had heard about breast cancer before, they all said yes. Likewise most (56.1%) of the respondents were able to identify ten out the fourteen signs and symptoms of breast cancer. Also, Majority (54.0%) of the respondents knew breast self-examination as a type of breast cancer screening method and only few (31.4%) knew about mammography. Thus, the results seem to suggest that all the respondents knew about breast cancer.

Table 4.2 shows the sources of information about breast cancer. The respondents gave multiple responses.

Table 4.2: Source of Information about Breast Cancer

Source of information	Frequency	Percentage (%)
Mass media	160	53.5
Hospital	144	48.2
Public health education	73	24.4
Friends	46	15.4
Family member	44	14.7
Print media	33	11.0

Most of the respondents indicated mass media and hospital as their main source of information about breast cancer.

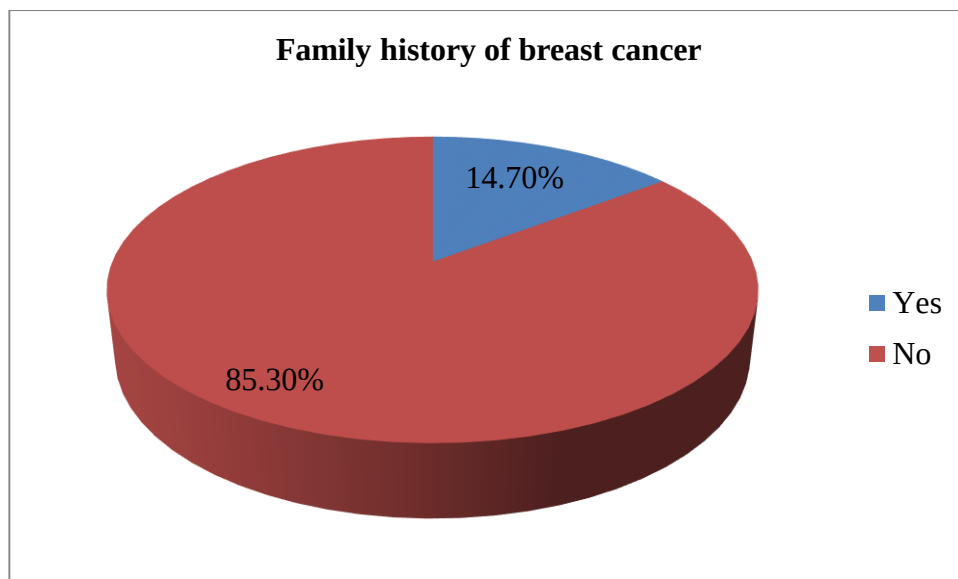


Figure 4.1: Family History of Breast Cancer

Most of the respondents (85.3%) had no family history of breast cancer.

Table 4.3 shows the signs and symptoms of breast cancer. The respondents gave multiple responses.

Table 4.3: Signs and Symptoms of Breast Cancer

Response	Frequency	Percentage (%)
Lump	223	74.6
Breast pain	199	66.6
Swelling of breast	153	51.2
Dimpling of skin	148	49.5
Bloody nipple discharge	145	48.5
Nipple discharge	143	47.8
Redness of breast skin	142	47.5
Skin irritation	123	41.1
Nipple itches	110	36.8
Lymph nodes under the arm	110	36.8
New pain in one spot	107	35.8
Pulling in of nipple	95	31.8
Nipple that turns inward	93	31.1

Majority of the respondents said signs and symptoms of breast cancer include lumps, breast pain, swelling of breast, dimpling of skin, bloody nipple discharge and redness of breast skin.

4.4 Types of Breast Cancer Screening Methods Respondents know

Table 4.4 shows the types of breast cancer screening methods known by the respondents. Each method was assessed individually. Thus, the percentage was calculated out of the total population.

Table 4.4: Types of Breast Cancer Screening Methods

Response	Frequency	Percentage (%)
Breast Self-Examination	163	54.5
Clinical Breast Examination	101	33.8
Mammography	94	31.4

Majority (54.0%) of the respondents knew of BSE as a type of breast cancer screening method whiles 33.8% and 31.4% knew about CBE and mammography respectively.

4.5 Proportion of Respondents who have ever had Breast Cancer Screening

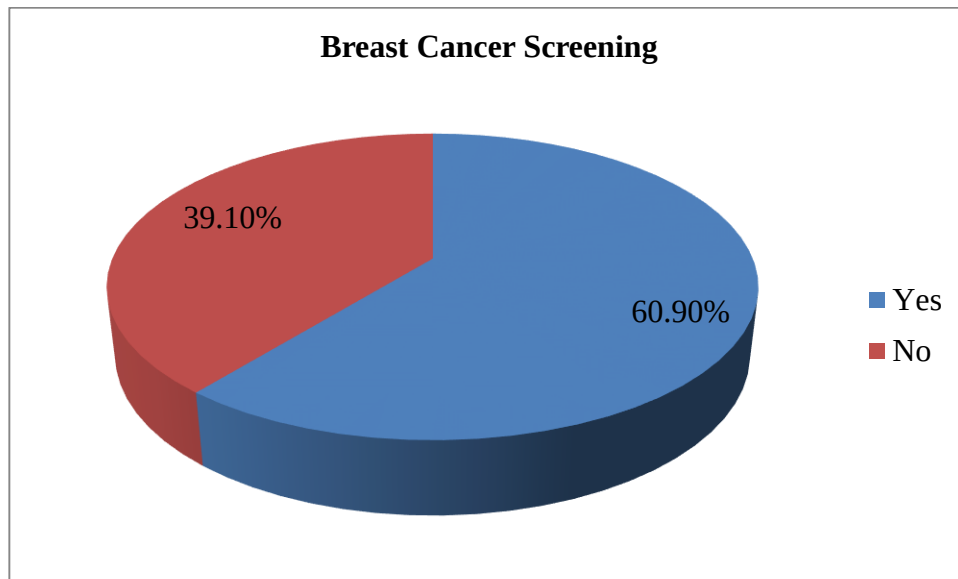


Figure 4.2: Breast Cancer Screening

Majority (60.9%) of the respondents had screened for breast cancer and the rest did not.

Table 4.5: Association between Family History of breast cancer and ever screened for Breast Cancer

		Have you ever screened for Breast Cancer?			
		Yes	No	Total	Asymp. Sig. (P=value)
Do you have family history of breast cancer?	Yes	37(84.1)	7(15.9)	44	(<0.001)
	No	145(56.9)	110(43.1)	255	
	Total	182	117	299	

Out of the respondents who had a family history of breast cancer 84.1% of them had undergone breast cancer screening compared to 15.9% who had not. The relationship between ever screened for breast cancer and family history of breast cancer is statistically significant (<0.001).

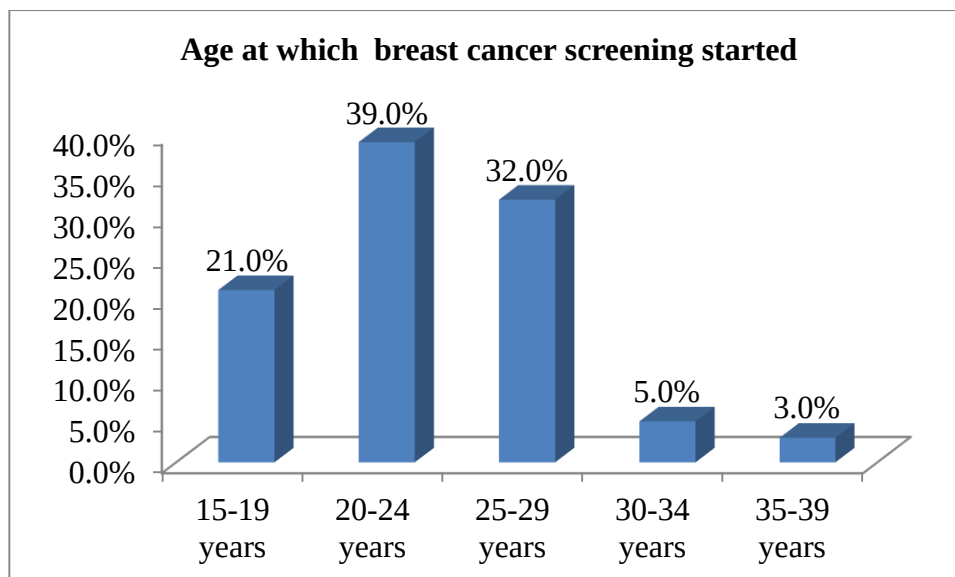


Figure 4.3: Age at which Breast Cancer Screening started

Majority of the respondents started breast cancer screening from age 20-24 years.

4.6 Level of Breast Cancer Screening among Respondents

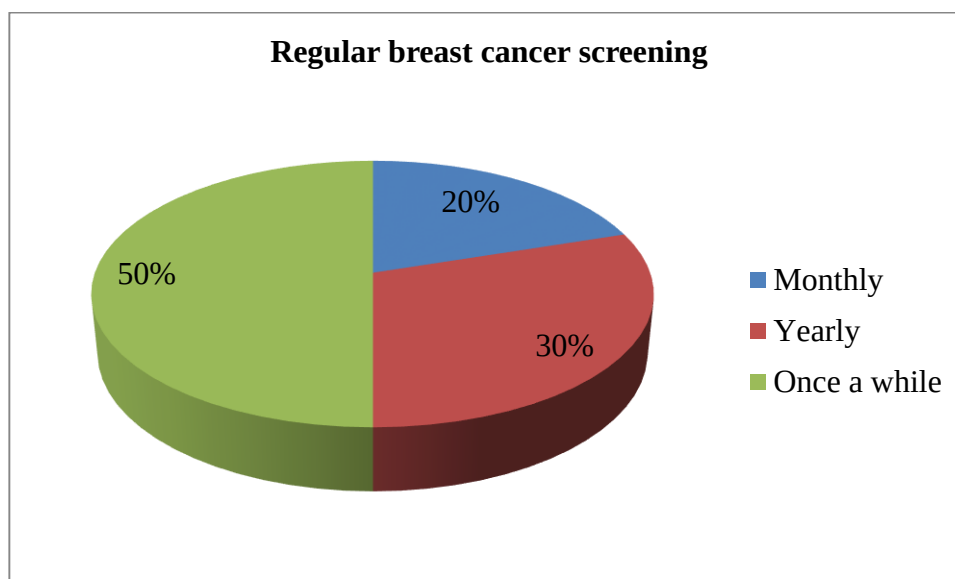


Figure 4.4: Regular breast cancer screening

Half (50%) of the respondents screened for breast cancer once a while, 30% screened

yearly and 20% screened for breast cancer monthly.

Table 4.6: Association between Breast Cancer Screening and Frequency of Breast Cancer Screening.

	Monthly	Yearly	Once a while	Total
Clinical Breast Examination (CBE)				
Yes	4(10.3)	15(38.5)	20(51.3)	39
No	34(22.7)	37(24.7)	79(52.7)	150
Mammography				
Yes	0(0.0)	4(25.0)	12(75.0)	16
No	38(22.0)	48(27.7)	87(50.3)	173
Breast Self-Examination				
Yes	34(20.2)	52(31.0)	82(48.8)	168
No	4(19.0)	0(0.0)	17(81.0)	21

Out of the respondents who had undergone CBE, 51.3 % had done it once in a while. Also, 38.5% and 10.3% had done it yearly and monthly respectively. Additionally, 75% of the respondents who said they had undergone mammography do it once a while. However, 25% do it yearly. Similarly, 48.8% of the respondents who said they do BSE did it once a while. The other respondents (31.0%) said they do it yearly whiles 20.2% did it monthly.

Table 4.7: Methods of Breast Cancer Screening by the age of women in GAF

	20-29 years	30-39 years	40-49 years	50-59 years	Total
Clinical Breast Examination					
Yes	10 (25.7%)	29(74.4%)	0(0.0%)	0(0.0%)	39
No	97(63.3%)	42(27.4%)	6(3.9%)	8(5.2%)	153
Breast Self-Examination					
Yes	100(58.5 %)	60(35.1%)	3(1.8%)	8(4.7%)	171
No	7(33.3%)	11(52.4%)	3(14.9%)	0(0.0%)	21
Mammography					
Yes	0(0.0%)	0(0.0%)	3(18.8%)	13(81.3%)	16
No	101(57.4 %)	64(36.4%)	3(1.7%)	8(4.5%)	176

Table 4.7 shows the methods of breast cancer screening used by the respondents. Out of those who used CBE, 74.4% were aged between 30-39 years. Amongst those who used BSE, 58.5% belonged to age group 30-29 years. Also, 81.3% of the respondents who used mammography belonged to age group 50-59 years. Majority of the respondents used BSE breast cancer screening method and a few used the mammography.

4.7 The Sociodemographic Factors associated with Breast Cancer Screening among the Respondents

Table 4.8 shows the factors associated with breast cancer screening among the respondents. It contains the cross tabulation of the demographic data of the respondents and the chances of breast cancer screening.

Table 4.8: Cross Tabulation of the Demographic Data of the Respondents and the chances of breast Cancer Screening

	Frequency (%)		
	Yes	No	Asymp. Sig. (P=value)
Age			
20-39 years	168 (51%)	111 (45%)	.091
40-59 years	14 (70%)	6 (30%)	
Marital Status			
Married	94 (71%)	38 (29%)	(<0.001)
Not Married	88 (52.7%)	79(47.3%)	
Rank			
Officer	26 (70%)	11 (30%)	.211
Other Rank	156 (60%)	106(40%)	
Level of education			
Below Tertiary	51 (53.7%)	44 (46.3%)	(<0.001)
Tertiary	131 (64%)	73 (36%)	
Religion			
Christianity	158 (56%)	108 (44%)	.139
Islam	24 (73%)	9 (27%)	

The result shows that (compared to those who are less than or equal to 39 years and those who are 40 years and above) breast cancer screening increases as age increases. However the difference was not statistically significant. Those who are married are more likely to

go for breast cancer screening, and the relationship between marital status and breast cancer screening is statistically significant (<0.001).

The higher the level of education of the respondents, the greater the chances of breast cancer screening, and the p value is 0.00 which is less than the stipulated 0.05 significance level shows that there is a relationship between the level of education and the chances of breast cancer screening.

Majority of the respondents who were Muslim have gone for breast cancer screening however, the p value is 0.14, which is greater than the stipulated 0.05 significance level. Thus, there is no significant relationship between religion and breast cancer screening.

Table 4.9: Multiple Logistic Regression Analysis

Variables		Odds Ratio	P-value	95% C I	
				Lower	Upper
Educational Level Respondent	Below tertiary	1.0	0.0721	0.8933	13.7859
	Tertiary	3.509			
Marital status	Married	1.0	0.2155	0.0303	2.2000
	Not married	.258			

Table 4.9 shows a multivariate analysis using logistic regression. The results show that, women who are married have a higher odds ratio of screening for breast cancer. Similarly, women who have tertiary education have a higher odds ratio of screening for

breast cancer. However the P-values show that there is no significant association between the demographic variables and breast cancer screening.

CHAPTER FIVE

DISCUSSION

5.1 Introduction

This chapter presents the discussion of the results of the research. This research was set out to determine the level of knowledge and determinants of Breast Cancer screening among personnel of GAF.

5.2 Knowledge of Breast Cancer among Female Personnel of the GAF

The results of the research revealed that majority (100%) of the respondents had general knowledge about breast cancer. This could be attributed to the efforts of the mass media. It is very usual to see a lot of advertisement on the various media during breast cancer awareness day celebrations. The result of this research is similar to a study done by Seah and Tan (2007) which revealed that majority of the respondents had high knowledge about breast cancer. However, a similar study done by Kwawu (2010) involving 300 female personnel of the GAF in the Greater Accra Region revealed that majority of the respondents had poor knowledge about breast cancer and the risk factors associated with it. The contrast in results obtained by the study by Seah and Tan (2007) and Kwawu (2010) can be attributed to the fact that the study by Seah and Tan (2007) was conducted among nurses in a General Hospital in Singapore as opposed to Kwawu's (2010) study amongst female personnel of the GAF. Generally, since the nurses are health workers it is expected that they know more about issue related to health.

A similar study conducted by Opoku, Benwell and Yarney (2012) also revealed that the women who took part in the study had insufficient knowledge about breast cancer and breast cancer screening due to the misconceptions and risk factors associated with breast cancer.

In addition, the findings of this research revealed that majority (53.5%) of the respondents got information about breast cancer from the mass media. The findings of this research contrasts a study by Yilmaz, Bebis, and Ortabag (2013) which found that majority of the respondents who were from Turkey got information about breast cancer from the Internet. The proliferation of Internet in Ghana is low as compared to Turkey. In Ghana, most women rely on the mass media especially the radio and not the Internet to obtain information.

This research also revealed that majority (85.3%) of the respondents had no family history of breast cancer. Thus the respondents did not have a high risk factor of breast cancer as revealed by a study by Johnson and Dickson-swift (2008) which showed that respondents who had family history of breast cancer had a high risk factor of breast cancer. Also, majority (74.6%) of the respondents knew that breast lump is a sign and symptom of breast cancer. This research finding was similar to a study conducted by Kwawu (2010) which revealed that majority of respondents knew that an unusual painless breast lump was warning sign of breast cancer. Similarly, Odusanya's (2001) findings that out of the 85% of the respondents who knew breast cancer as a serious disease, 53.2% knew that breast lump was the commonest recognized sign also supported the findings of this research by revealing.

5.3 Proportion of Female Personnel who have ever gone for Breast Cancer

Screening

The results of this research revealed that majority (60.9%) of the respondents had been screened for breast cancer. The results show that, majority of the respondents started breast cancer screening from 20-24 years. Although the results obtained shows an early age for breast cancer screening, a study by Clegg-Lampitey et al, 2009 revealed that in Ghana, an estimated 60% of patients with breast cancer report with late stage disease (stage III and IV disease). This may be attributed to the stigma associated with breast cancers. Prominent amongst the stigmas is the cutting of the breast. Similarly, the fear of death has the tendency of also contributing to the reason why patients reported with late stage disease.

5.4 Level of breast cancer screening among respondents

The results of this research revealed that, majority (50%) of the respondents screened for breast cancer once a while. These findings may be attributed to lack of awareness about regular screening for breast cancer. Contrary to the results of this research, Seah and Tan (2007) conducted a study which revealed that 63% of the respondents did regular BSE. Their study had different results most probably because their study was conducted amongst nurses in contrast to this research which was conducted among female personnel of GAF.

This research also showed that majority of the respondents used BSE method of breast cancer screening. The findings of this research was supported by (Yilmaz, 2010) whose

study revealed that that BSE was the commonly known and used type of breast screening methods. However, BSE is not conclusive in determining breast cancer.

5.5 Types of Breast Cancer Screening Methods Respondents know

BSE is the easiest way by which one can screen for breast cancer. This research revealed that majority of the respondents knew BSE as a type of breast cancer screening method. Similarly, the finding of this research corresponds to a study conducted by Odusanya (2001) which revealed that BSE was practiced by 62% of the respondents. This may be due to the fact that BSE is easy to carry out and is also a cost-effective method for early detection of breast cancer.

Although the commonest breast screening method as revealed by this research is BSE method, there is however some controversy over its effectiveness. Breast cancer awareness through inspiring women for BSE is a feasible choice for developing countries like Ghana. Mammography is however, the most effective screening tools for early detection of Breast cancer.

5.6 Socio demographic factors associated with Breast Cancer Screening among the Respondents

According to a study by Ibrahim and Oludara (2012) and Okobia1, et al. (2006) factors such as age, marital status and religion have an effect on breast cancer screening. Similar findings were made by this research indicating that breast cancer screening increases as age increases. Also, there is a relationship between marital status and breast cancer

screening. Most of the respondents who have gone for breast cancer screening are within different rank levels. However the research revealed that there is no significant relationship between the rank of the respondents and the chances of breast cancer screening. Additionally, it revealed that the higher the level of education of the respondents, the greater the chances of breast cancer screening. The result also shows that there is a relationship between the level of education and the chances of breast cancer screening.

As revealed by the research, there is no significant relationship between religion and breast cancer screening. Also, the results of the logistic regression show that, women who are married have a higher odds ratio of screening for breast cancer. Similarly, women who have tertiary education have a higher odds ratio of screening for breast cancer. However, the P-values show that there is no significant association between the demographic variables (marital status, educational) and breast cancer screening.

5.7 Limitations

- i. Data collected through questionnaire is subject to contextual sampling error as some of the questions were intentionally not answered by some of the respondents. Consequently, some of the questionnaires which may have affected the results of the research were not used.

- ii. The reliance on questionnaire in itself is a limitation to the research, because it is difficult to gather sensitive data. There is the likelihood for most respondents to have provided answers to reflect a socially acceptable norm. Conclusions are normally drawn from the responses that are provided by the respondents. Therefore, if the answers provided by the respondents are skewed in anyway the results of the study will consequently be affected.

- iii. The use of a non-probability sampling method was also a limitation because it made it difficult to generalize the findings of the research. Probability sampling methods have the advantage of giving every member of the population an equal chance of being selected.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

The research had as its objectives to determine the knowledge of breast cancer among female personnel of the GAF, to determine the proportion of female personnel who have ever gone for Breast Cancer screening and to determine the relationship between Breast Cancer screening and socio demographic factors. The research concludes that female personnel of the GAF have general knowledge about breast cancer. The knowledge of breast cancer amongst the women was mostly obtained from the mass media. The family history of breast cancer amongst the women was also low. The research also concludes that most women know the signs and symptom of breast cancer to be lump in the breast. The mass media is the commonest source of information to women on breast cancer.

Most of the women had been screened for breast cancer. Likewise, most of the women started breast cancer screening from 20-24 years. However, the women screened for breast cancer once a while. The women used BSE method breast cancer mostly. Additionally, although women who are married and women with tertiary education are more likely to screen for breast cancer, these factors are not significant in determining the likelihood of screening for breast cancer.

6.2 Recommendations from Research

Based on the findings of the research, the following recommendations are made:

- i. One of the strongest predictors of screening compliances is the knowledge of the reason for screening. Thus the research recommends that Health care providers seeing clients should give cancer screening education at health facilities.
- ii. Results of this research indicate that the mass media is the commonest source of information to women on breast cancer. Thus, the research recommends that Health care providers should give more health talks through the Radio and Television in order to reach more women.
- iii. The GAF should put measures in place to encourage BSE amongst the female personnel.

6.2.1 Recommendations for Future Studies

- i. Studies should be conducted to investigate why some women do not patronize breast cancer examination so as to make appropriate recommendations for the GAF.
- ii. Future research on this topic should include other workers who are not GAF personnel so as to make a better generalization of the results.

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APPENDICES

APPENDIX 1

CONSENT FORM

Purpose of the study

I am Gifty Ekua Merdiemah of University of Ghana Public Health School. This questionnaire is for a survey to acquire data for my MPH research on the topic: “Breast Cancer Screening among Female Personnel of Ghana Armed Forces.” The data will enable me to assess knowledge on Breast Cancer screening among female personnel of the Ghana Armed Forces. The study has been approved by the Ghana Health Service Ethical Committee. Permission is sought from the Ghana Armed Forces and the 37 Military Hospital Institutional Review Board to conduct this study.

The questionnaires include questions on knowledge on Breast Cancer and screening, signs and symptoms and methods of Breast Cancer screening. Information obtained would be used for purely academic purposes and treated with absolute confidentiality. Please tick as appropriate. Thank you for your time.

Potential Risk/ Benefit

The results of the study will be of enormous benefit to both the study population and the society. The study also will bring to light the prevalence of Breast Cancer screening among the female personnel. This research will not pose a potential risk to the study population or society.

Privacy/ Confidentiality

Also to ensure anonymity and confidentiality, you will not be required to write your name.

Data Storage and Usage

The questionnaire for the study will be under the care of the principal investigator. The hard copy will be coded into the data base of statistical software. The hard copy of the data will be put under lock whiles the soft copy will be saved on a computer under a password known only to the principal investigator. A back up of the soft copy will also be kept on a pen drive and kept under lock by the principal investigator.

Voluntary Withdrawal

Participation in this study will strictly be voluntary. Thus, respondents will be at liberty to withdraw from the study at any time. However, their answers will greatly be needed to help this research meet its objectives.

Compensation

There will be no pressure on individuals to participate as respondents and no incentives will be provided to respondents.

Please do you have any questions you wish to ask about the study? Yes/No

If yes, please, indicate below

.....
.....

.....
.....

If you have any questions later please, contact Gifty Ekua Merdiemah (+233) 244677284 or Hannah Frimpong, Administrative Secretary, Ghana Health Service Ethical Review Committee on +233 243235225/+233 0507041223.

I agree to participate.

Signature

Date

APPENDIX 1
SAMPLE QUESTIONNAIRE

Section A: Bio and Demographic Data
--

A1. Age:

- i. 20 – 29 _____
- ii. 30 – 39 _____
- iii. 40 – 49 _____
- iv. 50 – 59 _____

A2. Marital Status:

- i. Married _____
- ii. Single _____
- iii. Divorced _____
- iv. Separated _____

A3. Are you an Officer or Other Rank?

- i. Officer _____
- ii. Other Rank _____

A4. What is your level of education?

- i. SHS/SSS _____
- ii. 'O' Level _____
- iii. 'A' Level _____

iv. Tertiary _____

v. Others _____

A5. Religion?

i. Christianity _____

ii. Islam _____

iii. Traditional Belief _____

iv. Other (Specify) _____

vi. None _____

Section B: What knowledge do respondents have on Breast Cancer?
--

B1. Have you heard of Breast Cancer?

i. Yes _____

ii. No _____

If yes from where?

i. Family member _____

ii. Hospital _____

iii. Public Health Educator _____

iv. Mass Media _____

v. Print Media _____

vi. Friends _____

B2. Do you have family history of Breast Cancer?

i. Yes _____

ii. No _____

B3. Which signs and symptoms of Breast Cancer do you know?

i. Lump _____

ii. Nipple that turns inward _____

iii. Nipple itches _____

iv. Swelling of all or part of the breast _____

v. Bloody Nipple discharge _____

vi. Skin irritation or dimpling _____

vii. Breast pain _____

viii. Redness, scaling, or thickening of the nipple or breast skin _____

ix. A nipple discharge other than breast milk _____

x. lymph nodes under the arm or around the collarbone that cause a lump or swelling there, even before the tumor in the breast tissue is large enough to be felt _____

xi. Pulling in of the nipple or other parts _____

xii. New pain in one spot that does not go away _____

xiii. Dimpling or pocking of the skin or change in size or shape _____

Section C: What proportion of respondents who have ever gone for Breast Cancer

C1. Have you ever screened for Breast Cancer?

i. Yes _____

ii. No _____

If yes answer questions in Section D.

C2. At what age did you start Breast Cancer screening?

- i. 15 – 19 years ____
- ii. 20 – 24 years ____
- iii. 25 – 29 years ____
- iv. 30 – 34 years ____
- v. 35 – 39 years ____
- vi. 40 – 44 years ____
- vii. 45 – 49 years ____
- viii. 50 – 54 years ____
- ix. 55 and above ____

Section D: Level of Breast Cancer screening among respondents
--

D1. How often do you screen for Breast Cancer?

- i. Monthly ____
- ii. Yearly ____
- iii. Once a while ____
- iii. Others ____

D2. What method of Breast Cancer screening did you use?

- i. Clinical Breast Examination (CBE) ____
- ii. Mammography ____
- iii. Breast Self-Examination ____

iv. Other (Specify) _____

Section E: What types of Breast Cancer screening methods do respondents know?
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E1. What type of Breast Cancer Examination methods do you know?

v. Clinical Breast Examination (CBE) _____

vi. Mammography _____

vii. Breast Self-Examination _____

viii. Other (Specify) _____

E2. How many times have you undergone Breast Cancer Examinations?

ix. Clinical Breast Examination (CBE) _____

x. Mammography _____

xi. Breast Self-Examination _____

xii. Other (Specify) _____

APPENDIX 3

ETHICAL CLEARANCE (GHANA HEALTH SERVICE)

APPENDIX 4

PERMISSION FROM 37 MILITARY HOSPITAL INSTITUTIONAL REVIEW BOARD

APPENDIX 5

PERSONNEL ADMINISTRATION OF THE GHANA ARMED FORCES