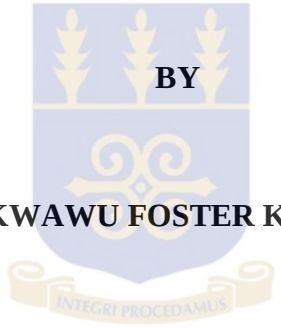
SCHOOL OF PUBLIC HEALTH

COLLEGE OF HEALTH SCIENCES

UNIVERSITY OF GHANA

BREAST CANCER: KNOWLEDGE, ATTITUDES AND PERCEPTIONS AMONG FEMALE SOLDIERS OF THE GHANA AREMED FORCES IN THE GREATER ACCRA REGION



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A DISSERTATION SUBMITTED TO THE SCHOOL OF PUBLIC HEALTH, UNIVERSITY OF GHANA, LEGON, IN PARTIAL FULFILMENT FOR THE AWARD OF MASTERS DEGREE IN PUBLIC HEALTH

AUGUST 2010

DECLARATION

I hereby declare that apart from references to peoples work that have been duly cited, this dissertation is the result of my research.

This dissertation has not been presented elsewhere either in part or in whole for another degree.

Signature: ……..…….

Name of student:……..

Date:…….

Signature:…….

Name of Academic Supervisor:……

Date:……

DEDICATION

This work is dedicated first and foremost to the ALMIGHTY GOD who saw me through this programme and to my dear wife and two lovely daughters for their unflinching support.

ACKNOWLEDGEMENT

I am most grateful to the Lord Almighty for his mercies and for bringing me this far. I would also like to express my sincere gratitude to my Academic Supervisor Dr. Christine Clerk for her immense assistance and input into this work.

I am also most grateful to my dear wife Mrs. Gloria Siileh Kwawu for her support and also helping type out this work.

My sincere appreciation and gratitude also goes to Dr. Nicholas Kyei and Dr. Lloyd Abiemoh all of 37 Millitary Hospital who helped me collect data for this research.

Finally, I am indebted to every individual who has helped me in one way or the other to make my MPH programme a success.

ABSTRACT

Introduction: Breast cancer continues to represent a major public health problem despite recent falls in deaths due to improved survival from a combination of early diagnosis, breast screening and improvement in treatment methods.

This study aimed to determine the knowledge about and attitudes towards breast cancer among female soldiers and officers of the Ghana Armed Forces and to document some of the perceptions they have about breast cancer.

Methods: A cross-sectional study was conducted among uniformed female personnel within all units of the Ghana Armed Forces (GAF) in the Greater Accra Region. Interviewer-administered questionnaires consisting of closed ended questions were employed. The study adapted the standardized and widely used breast cancer knowledge and perception survey developed in the 1980s.

Results: A total of 300 female soldier and officers participated in the study. The mean age of respondents was 28.7 years (sd=6.78) and only 33% were married. Eight-one percent were in the Junior Rank category, 9.0% were Senior Non-commissioned Officers (SNCOs), 6.0% were Junior Officers and 4.0% were Senior Officers.

Seventy-eight percent of respondents had poor knowledge about the risk factors for breast cancer. Only 30.7% of respondents knew that a woman's risk of developing breast cancer increased with age and only 36.3% knew that a positive family history is a strong risk factor for breast cancer. Respondent's knowledge about warning signs and symptoms of breast cancer was generally good as 67% had satisfactory knowledge about the warning signs and symptoms of breast cancer.

Most respondents (73.0%) know that an unusual painless breast lump is a warning sign of the disease and 75.3% knew that an unusual nipple discharge is also another sign. Nipple retraction or inversion was the least known symptom; only 41.7% mentioned it as a warning sign.

Although a third (33.7%) of respondents were able to tell the correct sequence of steps in breast self-examination only 20.3% actually performed BSE monthly as recommended by health authorities. Majority of respondents (93.7%) had a healthy attitude to breast cancer. Seventy-one percent indicated they would see a doctor within a month on discovering any unusual breast lump. With regards to breast cancer perceptions, 21.7% indicated that changes found in the breast during BSE are usually cancer and 40% also thought a blow to the breast can cause breast cancer.

One's level of education (x^2 =12.417, df=4, p=0.015) and unit (x^2=13.143, df=1, p<0.001) showed significant association with 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 (x^2=23.195, df=1, p<0.001).

Conclusion: Majority of female soldiers had poor knowledge about the risk factors for breast cancer. Nevertheless, their attitude to breast cancer was generally good.

To the extent that these results reflect the current knowledge and perceptions of female soldiers of the GAF in general about breast cancer, they call for renewed and innovative efforts directed at enhancing breast caner knowledge and early detection practices.

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LIST OF ABBREVIATIONS

1.	ACS	-	American Cancer Society
2.	BSE	-	Breast Self-Examination
3.	CBE	-	Clinical Breast Examination
4.	CIS	-	Carcinoma-in-situ
5.	HRT	-	Hormone Replacement Therapy
6.	NHIS	-	National Health Insurance Scheme
7	SNCOs	-	Senior Non-commissioned Officers

DEFINITION OF TERMS

1. Breast Self-Examination - Personal examination of one's own breast
2. Clinical Breast Examination - Breast examination by a qualified health personnel (Doctor or Nurse).
3. Carcinoma-in-situ - The earliest form of cancer and is non-invasive.
4. Lumpectomy - Surgical removal of a lump or mass (in the breast).
5. Mastectomy - Partial or complete surgical removal of a diseased (cancerous) breast.
6. Mammography - Examination of a woman's breast using x-rays to check for cancer.

CHAPTER ONE

1.0 INTRODUCTION

1.1. Background

Breast cancer is the most prevalent cancer world wide with about one million new cases annually and the second most common cause of cancer deaths among women (American Cancer Society, 2009-2010, Parkin et al, 2002). It is a complex disease that appears to have environmental, genetic and hormonal components that are not fully understood. Many countries are recording increases in the incidence rate of breast cancer with the greatest changes in developing countries where rates were initially low (Parkin et al, 2002).

Breast cancer is one of the leading malignancies in Ghana, accounting for 16% of all malignancies (Badoe & Baako, 2008). Data from a study in 1972-77 showed that breast cancer accounted for 7.45% of all cancers treated at Korle-bu Teaching Hospital. It ranked fourth after liver cancer, cancer of the cervix and Burkitts Lymphoma (Quartey-Papafio & Anim, 1980). However a 10-year review of hospital autopsies and hospital mortality in 2006 revealed that the commonest cause of cancer death in females was malignancies of the breast. This accounted for 17.24% of cancer deaths. This was closely followed by cancers of the haematopoietic organs (14.69%), liver cancer (10.97%), and cervical cancer (8.47%) (Wiredu & Armah, 2006).

Globally, just about 7% of all breast cancers occur in women under 40 years according to data from the Surveillance, Epidemiological, and End Result (SEER) programme of the National Cancer Institute of USA (SEER of National Cancer Institute, 2010, Batori et al, 2006). However, compared to the developed world, breast cancer tends to occur at a

younger age in developing countries with more than half of cases occurring in premenopausal women (Holcombe et al, 1999). The average age of diagnosis of breast cancer may be younger in developing countries as data from the eastern european population suggest (Hisham & Yip, 2003; Robson et al, 2005; Son et al, 2006). In Eastern Africa, it is estimated that the age standardized incidence rates (per 100,000 women) is 19.5 years. In Western Africa it is 27.8, in Middle Africa 16.5 and 33.4 years in Southern Africa (International Agency for Research on cancer. CANCERMondial Statistical Information.Globocan database, 2010). In Ghana, girls as young as 16 years have been diagnosed with breast cancer (Clegg-Lamptey et al, 2007).

A binomial pattern of age presentation has been observed in many African countries with an early peak at 35-40 years and a later peak at 60-65 years (Mugitit, 1993). Risk factors for breast cancer include age, personal and family history of breast cancer, early menarche, late menopause, late conception of first child and hormone replacement therapy after menopause (American Cancer Society, 2009-2010; Hankinson & Hunter, 2002). Other risk factors are exposure to organochlorine compounds and alcohol (Rennix, 2005).

With early detection breast cancer is 95% curable. Delayed presentation of symptomatic breast cancer of three months or more is however associated with a lower survival rate from the disease (Richards et al, 2000). About 90% of women whose breast cancers are detected and treated early can expect to be disease-free after about 5 years (American Cancer society, 1999-2000).

The American Cancer Society (ACS) recommends that women younger than 40 years perform breast self-examination (BSE) every month, have clinical breast examination (CBE) by a physician every three years and an annual mammogram after age 40.

Mammography is however, recommended in women less than 40 years who have significant risk factors for breast cancer (American Cancer Society, 2004; Boyle, 2003). In Ghana only 25% of breast cancers are detected at the early stage (Clegg-Lamptey et al, 2007). On the average Ghanaian women report eight months or more after first noticing a change in the breast (Clegg-Lamptey et al, 2007). While some of this delay is health provider-related, an estimated 20%-30% of women globally wait at least three months before seeking medical help with breast symptoms (Richards et al, 2000).

A recent fall in deaths from breast cancer has been reported owing to improved survival from a combination of earlier diagnosis, breast screening and better treatment (Richards et al, 2000). The relative contributions of these factors however remain to be evaluated. Nevertheless, breast cancer mortality continues to represent a major public health problem and further gains in survival might be achieved by encouraging women who delay presentation to seek help more quickly. It has been noted that the low level of knowledge of the risk factors, the warning signs and symptoms, unhealthy attitude to breast cancer and screening practices and programmes coupled with misconceptions (beliefs and myths) about the disease have largely contributed to the late presentation and subsequent poor outcomes of breast cancer in many developing countries including Ghana (Odusanya, 2001; Clegg-Lamptey et al, 2007).

Early detection is therefore a key factor in the fight against breast cancer. As breast cancer can occur at any age, women of all age groups should be aware of their personal risk factors for breast cancer. It is important that women are educated properly to understand the risk factors and warning signs, as well as screening programmes and practices. This

will to a large extent clear or disperse the misconceptions or perceptions held about the disease and potentially lead to earlier presentation.

The aim of this study therefore, is to determine the knowledge, attitudes and perceptions of female soldiers of the Ghana Armed Forces within Accra and Tema in the Greater Accra Region of Ghana about breast cancer.

1.2 Statement of the Problem

The lifetime risk of developing breast cancer is at an incidence level of one in nine globally and breast cancer is now one of the commonest malignancies in Ghana, accounting for 16% of all cancers (Badoe & Baako, 2008).

It has been shown that breast cancer tends to occur a decade earlier among women in developing countries and there is an increase in the incidence of breast cancer among young women in Ghana and other developing countries (Holcombe et al, 1999; Robson et al, 2005; Son et al, 2006; Clegg-Lamptey et al, 2007).

Young women however do not consider themselves at risk of developing breast cancer since the disease is usually associated with the elderly.

Presentation at the hospital is therefore late, in most cases more than 8 months after noticing significant breast changes. Late presentation is associated with poor prognosis.

The research questions therefore are:

1. Do female soldiers know the risk factors, signs and symptoms of breast cancer?

2. Are they knowledgeable enough about the various methods of detecting breast cancer?

3. What are their perceptions about the disease?

1.3 Justification of Study

The Ghana Armed Forces is an organized institution with a well structured medical system with a Public Health Unit responsible for disease control, prevention and health promotion.

Comprehensive studies have been conducted among uniformed personnel in other countries which have informed policy decisions. An example is the United States of America Army where every female undergoes a mandatory physical examination including a clinical breast examination at least once in three years (Erickson et al, 2000). Although the number of female soldiers within the Ghana Armed Forces has increased over the years since the initial recruitment several years ago, no study has been conducted among then to determine their knowledge, attitude and perceptions of breast cancer. Female soldiers are usually young, aged between 17 and 55 years. Results from this study will therefore go a long way to inform the policy decisions regarding screening for breast cancer in the Ghana Armed Forces and in Ghana.

Furthermore findings from this research will provide specific information needed to be able to organize a much more effective educational campaign against breast cancer in the Ghana Armed Forces and in Ghana.

1.4 Objectives of the Study

1.4.1 General Objectives

To determine the knowledge, attitudes and perception of breast cancer among female soldiers of the Ghana Armed Forces within Accra and Tema in the Greater Accra Region.

1.4.2 Specific Objectives

(1) To determine the knowledge of risk factors and warning signs associated with breast cancer among female soldiers.

(2) To determine female soldiers' knowledge of methods of detecting breast cancer.

(3) To evaluate the attitude of female soldiers towards breast cancer and breast self-examination.

(4) To determine the proportion of female soldiers who are proficient in Breast Self-examination and practise it.

(5) To document some of the perceptions (beliefs and myths) that female soldiers have about breast cancer.

CHAPTER TWO

2.0 Literature Review

2.1 Literature Search Strategy

Hinari, Medline and Pubmed data base were used to conduct the literature search to locate relevant articles published between 2000 and 2010. A few older classic articles about breast cancer were also used. The search was limited to articles published in English Language. Priority was given to articles reporting results of original research. However a few review articles, commentaries and some very relevant online literature were also used.

2.2 Introduction

Cancer of the breast is the most common malignancy affecting women in many parts of the world. Globally, it accounts for 18.4% of female cancers (American Cancer Society, 2009-2010). The role race plays in the incidence of breast cancer is not completely understood. In the USA, the incidence of breast cancer in black women is higher than in white women from 20-40 years of age. This difference decreases with increasing age and a higher incidence rate is observed for white women age 40 years and older .However, African-American women are more likely to die of this cancer. The American Cancer Society's most recent statistics for breast cancer in the USA for 2009 projected that about 192,370 new cases of invasive breast cancer and about 62,280 new cases of carcinoma-in-situ (CIS) will be diagnosed in women (CIS is the earliest form of cancer and is non-invasive). It is also projected that about 40,170 women will die from breast cancer (Breast cancer

statistics in USA, 2010). Britain also projected 38,048 breast cancer cases with 10,000 deaths in 2009 (Office for National Statistics, 2010). Of the developed countries, Japan has the lowest incidence of breast cancer; one in sixty women developing breast cancer in their lifetime. The death rate from breast cancer in Japan is about 30% of that in Britain, however this is rising rapidly (Badoe & Baako, 2008).

In Nigeria, the incidence of breast cancer has doubled from 15.3% per 100,000 women in 1976 to 33.6% per 100,000 in 2000 and is currently the leading malignancy in Ibadan (Breast cancer Association of Nigeria, 2010). In Accra, Ghana, breast cancer accounts for about 16% of all female cancers; being now the commonest cancer in females. About 400 new cases are diagnosed yearly at the Korle-bu Teaching Hospital (Badoe & Baako, 2008). In Kenya, breast cancer constitutes about 9.4% of all cancers in women, in Zimbabwe 8.5%, in Tanzania about 8.1%, in Sudan 26.0%, in Malawi 5.5%, in Liberia 15% and in Uganda 4.0% (Badoe & Baako, 2008).

While the exact cause of breast cancer is not known, multiple factors that increase risk have been identified and these include: increasing age, personal or family history of breast cancer, race, exposure to ionizing radiation, early menarche and late menopause. The Gail Index Score uses these risk factors to calculate a woman's risk of developing breast cancer within the next five years. A score of at least 1.7% puts a woman at risk of developing breast cancer.

Early detection remains key in the fight against breast cancer and this is only possible through methods such as breast self-examination, clinical breast examination, breast ultrasound scan and mammography of the breast. Treatment options include lumpectomy

(surgical removal of a lump), Mastectomy (surgical removal of the breast), Chemotherapy (drug treatment), and Radiotherapy (treatment with radiation).

2.2.1 Breast cancer risk factors related to Biological History and Health

Being female is the main risk for developing breast cancer. Other significant risk factors include a positive family history, age, genetic risk factors, race, personal history of breast cancer, exposure to ionizing radiation, early onset of menses and late menopause and early breast biopsy.

The risk of developing breast cancer increases with age. There are 45 cases per 1000 women aged 50-70 years. However, the incidence of breast cancer among the young is increasing in developing countries (Holcombe et al, 1999; Hisham & Yip, 2003; Son et al, 2006; Clegg-Lamptey et al, 2007).

Women whose close blood relatives have had the disease are at a higher risk of developing breast cancer. If a woman's mother, sister or daughter has breast cancer, the woman's risk doubles and women who have cancer in one breast have a greater chance of developing a new cancer in the other breast or in another part of the same breast (Badoe & Baako, 2008).

The role race plays in the incidence of breast cancer is unclear. White women are slightly more likely than African American women to develop breast cancer. However, African-American women are more likely to die of this cancer. Asian, Hispanic and American Indian women have a lower risk of developing breast cancer (American cancer society,

2009-2010). Women who have had chest area radiation treatment earlier in life have an increased risk of developing breast cancer. The magnitude of the effect increases as the radiation dose increases and as the age at exposure decreases, with the highest risk found in women exposed pre-pubertally (Wolff et al, 1996; Davis et al, 1998). As much as a nine fold increase in risk has been reported within this exposed subgroup.

Women who began menstruating before age 12 or who went through menopause after age 50 have a slightly increased risk of developing breast cancer. Breast cancer risk is reduced by 5% to 20% for each year that the onset of menarche is delayed. On the average the risk of breast cancer also increases by about 3% per year that menopause is delayed (Kelsey et al, 1993).

2.2.2 Breast cancer risk factors related to lifestyle

These factors include not having children, use of birth control pills, hormone replacement therapy (HRT), breastfeeding, alcohol consumption, exercise, diet and weight (Hankinson S & Hunter D, 2002; American cancer society; Facts and Figures, 2009).

Women who have had no children or who had their first child at age 30 and above have slightly higher risk of developing breast cancer. Overall parous women have a lower risk of breast cancer than nulliparous women although the relationship is complex and varies with time since child birth and the total number of births (Kelsey et al, 1993; Adami et al, 1998). Independent of parity, the younger a woman is at her first full-term birth, the lower her subsequent risk. Although the magnitude of the effect has varied among studies, the reduction in risk from having had a first birth by age 20 compared to age 35 or older is about 30% (Kelsey et al, 1993).

The role birth control pill may play in breast cancer risk is still not clear. Studies have found that women using birth control pills have a slightly increased risk of developing breast cancer. The estimated relative risk from a large pooled analysis in which data from 53,297 women with and 100,239 women without breast cancer was used for current and never-users was 1.24. Nevertheless women who stop taking birth control pill for ten years or more do not seem to have any increased risk (Collaborative Group on Hormonal Factors in breast cancer, 1996)

It has become clear that long-term use of combined HRT (oestrogen together with progesterone) for relief of menopausal symptoms may slightly increase the risk of developing breast cancer, as well as the risk for heart disease, blood clots and strokes. The risk is strongest among women with longest duration of use of HRT. In one large study, the relative risks for duration of use were 1.08 for 1-4 years of use, 1.31 for 5-9 years, 1.24 for 10-14 years and 1.56 for 15 years or more of use (Collaborative Group on Hormonal Factors in Breast cancer, 1997). Breast cancer is also found at a more advanced stage in women on HRT.

One's breast cancer risk returns to normal about five years after stopping HRT regardless of their duration of use. Oestrogen replacement therapy alone does not seem to increase the risk of developing breast cancer (Collaborative Group on Hormonal Factors in breast cancer, 1997; Million women study collaborators, 2005; Biglia et al, 2005).

Alcohol use is clearly linked to a slight increased risk of developing breast cancer. Women who have one drink per day have very small risk, but those who have two to five drinks per day have approximately one and half times the risk compared to women who do not drink

alcohol. Limited alcohol intake is advised by health care providers (Collaborative Group on Hormonal Factors in breast cancer, 2002; Allen et al, 2009; Smith-warmer, 2009).

Being overweight is associated with a higher risk of developing breast cancer, especially for post menopausal women and in those in whom the weight gain occurred during adulthood. In addition the risk of developing breast cancer seems to be higher if the extra fat is in the waist area (Owiredu et al, 2009).

However, the link between weight and breast cancer risk is complex, and studies of fat in the diet, as it relates to breast cancer risk, often have conflicting results. Since diet and weight have been shown to affect the risk of developing several other types of cancers and heart disease health professionals advocate maintaining a healthy weight and limiting the intake of red meat especially those high in fat.

2.2.3 Protective factors for Breast cancer

Early child bearing, multiparity and breastfeeding and to some extent exercise have been shown to protect against breast cancer (Hankinson & Hunter, 2002; Awatif, 2006).

Some studies have shown that breastfeeding slightly lowers breast cancer risk, especially if the breastfeeding last one and half to two years (Huo et al, 2008; Collaborative Group on Hormonal Factors in breast cancer, 2002). This could be because breastfeeding lowers the total number of menstrual periods. Exclusive breast feeding suppresses ovulation and menstruation as a result of increased prolactin levels. Oestrogen levels are relatively lower during this period. Up to 75% of breast cancers depend on oestrogen and progesterone for their growth (Badoe & Baako, 2008). The relatively lower oestrogen levels during the period of breast feeding may therefore lower a woman's risk of developing breast cancer.

The same explanation will probably apply to multiparous women since they have a relatively lower number of menstrual periods.

Some studies suggest that exercise while young may provide lifelong protection against breast cancer (Reigle et al, 2009; Friedenreich et al, 1998). A small amount of physical activity as an adult may also lower breast cancer risk. Physical exercises generally help an individual stay in good health.

2.4 Warning signs and symptoms of Breast cancer

There are several signs and symptoms which should alert a woman about breast cancer. A painless lump is the commonest warning sign and the upper outer quadrant of the breast is the most common site (Badoe & Baako, 2008). Because the normal breast is lumpy, emphasis is placed on the appearance or discovery of an unusual breast lump. Eight out of ten lumps reported at the hospital are usually benign (About Breast cancer, 2010). However in inflammatory breast cancers, the swelling or lumps may be painful.

Breast pain is another warning sign. In a study carried out at the Korle-bu Teaching Hospital in Accra, Ghana in 2007 among 447 patients with breast pain; 72% (322) presented with breast pain as the only symptom and 30% (125) had other symptoms such as breast lump and nipple discharge in addition to the breast pain. Breast cancer was found in 1.24% (4) of those who presented with breast pain as the only symptom and 16% (20) in those who had other symptoms in addition to pain (Clegg-Lamptey et al, 2007). The risk of breast cancer is therefore significantly higher in patients presenting with breast pain in

addition to other symptoms. Therefore, patients with breast pain should always have breast examination and not simply be reassured.

In another study at the Komfo Anokye Teaching Hospital in Kumasi, Ghana, cancer of the breast was diagnosed in one out of four women attending the breast cancer clinic with a bloody nipple discharge as the only presenting complaint (Ohene-Yeboah, 2007).

The other warning signs are nipple retraction, enlarged axillary lymph nodes with or without a palpable lump in the breast, unusual discolouration of the skin or a dimple in the skin around the breast or an ulceration of the skin (Badoe & Baako, 2008). The normal nipple is directed downwards and outwards; any unusual position of the nipple could suggest breast cancer and should be reported to the health care providers.

In advanced disease, breast cancer may present as a cough or difficulty in breathing or bone pain and fractures due to spread of cancer cells to lungs and bone respectively (Badoe & Baako, 2008).

2.5 Review of knowledge about breast cancer risk factors, signs and symptoms

Though quite a number of studies have been done on breast cancer in Ghana, not much has been done in the area of women' knowledge about the disease. This subject has however been widely explored in other countries.

In a quantitative telephone survey exploring breast cancer knowledge and perception of a sample of 2985 Australian women, only 5% of women mentioned age as a risk factor and only 33% were able to make an approximately correct estimate of the incidence of breast cancer in Australia. In the same study family history of breast cancer was the most well known risk factor, 49.4% (Paul et al, 2000).

Another cross sectional study among female health workers in a Nigerian urban city in 2009 revealed that a high proportion of the respondents (55%) had very poor knowledge about the risk factors for breast cancer (Akhigbe & Omuemu, 2009). This rather high percentage is surprising because health workers are supposed to act as role models and be knowledgeable enough to educate the general public about breast cancer. It is however satisfying that in the same year, another quantitative study among female doctors in a tertiary hospital in Lagos revealed highly satisfactory knowledge about breast cancer, 74% (Ibrahim & Odusanya, 2009).

A qualitative study among young women in the USA in 2008 revealed that these women had very low level of knowledge and understanding of breast cancer. They could only identify two main risk factors: age and family history (Johnson & Dickson-swift, 2008). Age is an important risk factor for breast cancer as the risk increases with increasingly age. Young women probably readily mentioned age as a risk factor because in the same study young women revealed that they did not consider themselves to be at risk of the disease.

In another quantitative study in Nigeria in 2001 among 188 school teachers in Lagos; 53% identified breast lump as a warning sign, 21.8% identified bloody nipple discharge as a warning sign, 16% said swollen axillary lymph node is also a warning sign and 23.9%

identified ulceration over the breast as a warning sign (Odusanya, 2001). Although this study demonstrates that the knowledge of breast cancer in a group of Nigerian women was at least average, studies from developed countries like the UK and the USA show a better knowledge and understanding of the warning signs and symptoms of breast cancer (Spittle & Morgan, 1999).

2.6 Screening Methods for Breast Cancer

There are four main ways to screen for breast cancer; breast self-examination, clinical breast examination (breast exam by one's doctor or nurse), breast ultrasound scan and mammography.

Breast Self-Examination (BSE) is appealing as a patient-centred, inexpensive, non-invasive procedure that empowers women and is universally available. Compared to clinical breast examination and mammography the estimated sensitivity of BSE is low ranging from 20%-30% and is much lower among older women. Two large clinical trials conducted in St Pertesburg Russia (involving 122,471 women) and Shanghai, China (involving 266,064 women) both did not show breast cancer mortality or improvement in the number or stages of breast cancer detected during 9 to 11 years follow up, but there is evidence for harm; a nearly two fold increase in false-positive results, physician visit and biopsies for benign disease (Semiglozov et al, 1998; Gao et al 1997). The Kotka pilot project in Finland in the 1990s however demonstrated that monthly BSE can help reduce breast cancer incidence and mortality (Hakama et al, 1995).

Clinical breast examination (CBE) is widely recommended and practiced as a tool for breast cancer screening, however, its effectiveness depends on its precision and accuracy.

Estimated sensitivity of CBE is 54% and specificity is about 94%. The likelihood ratio of a positive CBE result is 10.6 (95% confidence interval 5.8-19.2) while the likelihood ratio of a negative test result is 0.47 (95% confidence interval, 0.40-0.56). Further trials on CBE are ongoing (Barton et al, 1999).

Breast ultrasound scan or imaging is exposing the breast to high frequency sound waves. Like BSE and CBE, it is non-invasive and usually painless. It is also widely available, easy to use and less expensive than other imaging methods. It is an important adjunct to mammography and CBE, however the use of ultra sound in population screening of asymptomatic women is associated with unacceptably high rates of both false-positive and false negative outcomes (Teh & Wilson, 1998).

Mammography is x-ray of the breast and is presently the only screening tool proven to reduce breast cancer mortality. Since it employs ionizing radiation it may increase the risk of breast cancer in high risk women. False positive mammography results are also common.

2.7 Knowledge and performance of screening methods

Detection and treatment of breast cancer at an early stage improves the prospects for long term survival. In most cases of breast cancer, the outlook or prognosis for patients with small localized tumours is much better than treatment of patients with advanced disease or metastatic disease (McCready et al, 2005). If cancers are diagnosed early, microscopic spread of disease may not have occurred. Excision of the primary tumour may therefore be curative. Early detection is therefore key in the fight against breast cancer.

The American Cancer Society (ACS) recommends that all women 20 years of age and older should perform monthly Breast Self Examination (BSE). The best time to perform BSE is the day after the monthly period ends and for non-menstruating females any selected day and BSE is performed on the same day of each month).

The effectiveness of BSE as a screening tool for breast cancer remains controversial. Whiles some clinical trials say it is very helpful others hold the view that it is not and may even be harmful (Hakama et al, 1995; Serniglazov et al, 1998; Gao & Thomas, 1997). However becoming familiar with the look and feel of one's breast offers the best chance for a woman to notice any changes in the breast (Breast cancer in Young women, 2010).

In addition to BSE, regular clinical breast examination (CBE) performed at least every three years by one's doctor is recommended for all women from age 20 (American Cancer Society, 2009, Breast cancer in Young women, 2010). It is also recommended that from 40 years, women should have CBE performed every year by a health care provider. The ACS also recommends annual screening mammograms starting at age 40. Women younger than 40 years who have other significant risk factors for breast cancer such as a positive family history or a personal history may also be considered for mammography.

Several surveys done however suggest only a few women perform monthly BSE and many who do, do so wrongly. A cross-sectional study conducted in 2001 in Nigeria among nurses revealed that knowledge about how to conduct BSE was below average as only 40% knew the correct time interval in relation to the menstrual cycle when it should be done (Odusanyo & Tayo, 2001). This was far lower than 77% obtained among university nursing students in the United States of America who correctly identified the recommended time (Budded, 1995). In the same Nigerian study, the proportion (35%) that practised BSE at the recommended period showed good correlation with those that knew (40%) when to carry out the procedure. However given that these were health workers who know the benefits of BSE, the proportion performing BSE is rather low.

In another quantitative study among female soldiers in the United States of America in 2000, fewer than half (42.4%) of all respondents reported monthly breast self examination. It was however good to note that in the same study, the proportion that reported monthly BSE increased sharply with age. Female soldiers older than 35 were 1.8 times more likely than those younger than 25 to report monthly BSE. Female soldiers over 25 years with a family history of breast cancer were much more likely than those without family histories to report monthly BSE (Erickson et al, 2002). Recent surveys among women in the USA have found discordance between knowledge and practice regarding early detection of breast cancer; while the knowledge of BSE was as high as 92% in some surveys, their practice of BSE was low, ranging from 20%-40% (American cancer society, 2009-2010). In a survey among 393 women in an urban city in Nigeria, the awareness of mammography as a diagnostic method was very high at 80.7% but an extremely low knowledge of mammography as a screening method for breast cancer was found (Akhigbe

& Omuemu, 2009). It was therefore not surprising to note that only 3.1% of the women over 40 years who qualify for routine annual screening had ever had mammography. This may partly be due to the fact that mammography is expensive and not many women in developing countries can afford it. In Ghana, there is no population based mammography screening programme and thus it seems that BSE may be considered a realistic approach to early detection of breast cancers.

2.8 The Importance of BSE among Young Women

Although the effectiveness of BSE as screening method remains controversial, a significant number of women find masses when they are bathing or dressing and BSE once a month may contribute to a woman's heightened awareness of what is normal for her (Breast cancer in Young women, 2010; Haji-Mohmood et al, 2002).

BSE and early detection of breast cancer is particularly important among young women as this population often experience more aggressive cancers and lower chances of survival (Batori et al, 2006; Sidoni et al, 2003; Zhou & Recht, 2004; Zakharstewa et al, 2009).

Secondly, screening mammograms are recommended from 40 years. This is because breast tissue in younger women tends to be denser than in older women and mammograms may therefore not be useful in detecting lumps. Furthermore studies have shown that mammography screening may increase breast cancer risk in young high-risk women. Unfortunately this occasionally results in young women not being diagnosed with breast cancer until the cancer is well advanced thus lowering their chances of survival (Mammography may increase Breast cancer in young high-risk women, 2010). Finally

because the lifetime risk of developing breast cancer is one in eight, and breast cancer is the most common form of cancer diagnosed in women of all ages (except for certain types of skin cancer), establishing good breast health practices while young can reduce a woman's chance of getting breast cancer at a later stage.

2.9. Attitudes to breast cancer and Breast Self-Examination

Generally, women consider breast cancer as a very serious disease. The words "you have breast cancer" is possibly one of the most devastating statements an individual could imagine hearing from her physician even though breast cancer is the most common among women. The diagnosis bears a significant amount of anxiety and fear in regards to treatment and overall survival. Among women breast cancer is the condition they are most concerned about out of a list of eleven comparable conditions (Spittle, 1999; Lavelle & Charlton, 1998).

Breast Self-Examination is a simple, effective and inexpensive method of breast cancer screening which makes it suitable for all women. Evidence suggests that most women do not engage in breast awareness and are frightened and confused about their role in breast disease. In a quatitative study in Iran among 410 female health workers from 7 health centres, 63% believed that BSE is not difficult and 72% believed it was not time-consuming or troublesome. Surprisingly about half of the respondents were pessimistic about the likely successes of BSE (Haji-Mahmood et al, 2002). On the contrary in a breast cancer survey carried out in 2005 in the USA among college students, 99% believed BSE was the most effective method for detecting early breast cancer (Powe et al, 2005).

Some women also feel they would be "bothering" their doctor with something that might prove to be trivial after noticing an unusual change during BSE. This may probably be one of the reasons for delayed presentation of the disease at the hospital and might possibly be due to the fact that most breast changes or lumps are benign .Most women on several occasions may have been examined by their doctors and reassured hence the hesitation in reporting other new changes.

2.9.1 Attitudes to Breast cancer treatment

The course of treatment for breast cancer at any age is based on the extent of the disease as well as the woman's general health and personal circumstances. Treatment options include surgery (lumpectomy or mastectomy), chemotherapy and radiotherapy.

Despite suspecting that symptoms could be cancer, some women delay in seeing a doctor because they fear the consequences of medical intervention. The side effects of chemotherapy such as hair loss, nausea and vomiting have also contributed to the delay in reporting symptoms of breast cancer to the hospital. However, in the last 40 years new drugs have become available which can almost completely control nausea and very few people have persistent nausea and vomiting from chemotherapy (Burges et al, 2001). Current radiation techniques are now safe and effective for treating breast cancer, with few complications. Methods used today minimize exposure to the heart, ribs and lungs. Women

may experience a darkening of the skin during the course of treatment or a sunburn-like reddening. This usually clears up after the treatment (Radiotherapy for Breast Cancer, 2010; Bucholz, 2009).

In a quantitative survey in Nigeria among 188 school teachers, although 85% identified breast cancer as a very serious disease only about half of the respondents said they would agree to mastectomy (Odusanya, 2001). This is probably related to the African cultural belief which discourages removal of the body part and makes such procedures unacceptable (Atoyebi et al, 1997). About half of respondents in the same study said they would turn to a prayer house for help if they had breast cancer and 10% of the respondents stated they would turn to traditional medicine for help (Odusanya, 2001). This is one of the causes of delay in presentation (Atoyebi et al, 1997; Adebamowo & Ajayioo, 2000) and is deeply rooted in African traditional beliefs, where supernatural forces are believed to be important cause of disease.

2.10 Perceptions about Breast cancer

Despite numerous breast cancer awareness campaigns dedicated to breast cancer education, outreach and advocacy and the growing body of scientific information available to both the public and the medical community regarding breast cancer detection and cancer control, many myths, misconception and misinformation about breast cancer continue to exist within many communities. These myths, misconceptions and misinformation have been noted to a large extent to be partly responsible for the delay in seeking medical care after most women have discovered symptoms suggestive of breast cancer (Burges et al,

2001; Rhoads et al, 2000). Table 1 below summarizes some of the common myths and beliefs about breast cancer.

Table 2.1: Common myths and beliefs about breast cancer

Developing breast cancer

- Only women get breast cancer
- All races have equal death rate from breast cancer
- Finding a lump in your breast means you are very likely to have breast cancer.
- Only women with a family history of breast cancer on their mother's side are at risk of developing cancer.
- Underwire bras and antiperspirants cause breast cancer
- Women can prevent breast cancer by following low fat, high fibre diet.
- Breastfeeding cause breast cancer
- Women with large breast are at greater risk for developing breast cancer.
- Small breasted women cannot get breast cancer.
- An injury to the breast causes breast cancer.
- If a woman is diagnosed with carcinoma in-situ of the breast, she will get breast cancer.
- Breast cancer is mainly a genetic disease
- Breast cancer is contagious
- Oral contraceptive pills (Birth control pills) cause breast cancer.

Cancer screening

- Women with known risk factors are the only ones who developed breast cancer.
- Women younger than 35 do not get breast cancer.
- Mammograms cause cancer.
- A mammogram prevents breast cancer.
- Mammogram causes breast cancer to spread.
- Mammography is a full-proof means of detecting breast cancer.
- Doctors and nurses are the only ones who can palpate breast lumps.
- Breast cancer always presents itself in the form of lump.
- Breast self-examination is an effective means for identifying early stage breast cancer

Treatment and after care

- If a woman is diagnosed with breast cancer, she will lose her breast.
- Mastectomy ensures breast cancer will be eliminated forever.
- Women who have prophylactic mastectomy will not develop breast cancer.
- Chemotherapy will make a woman's hair fallout.
- Women who have breast cancer in the past should not become pregnant

Sources: Rhoads et al, 2000, Powe et al, 2005

Among these perceptions there are a few which are very common and popular among women. A very common one is that breast cancer always presents as a lump and that these lumps are always painless. In a quantitative survey among 158 college students in the United States of America in 2005 only 21% believed that lumps in the breast that are cancerous could be painful and 15% believed that being hit on the breast could cause cancer (Powe et al, 2005). In this same study the majority (97%) also identified doctors and nurses as the only ones who could find lumps in the breast and only 41% associated high fat and low vegetable diet with increased breast cancer risk.

Another very common perception is that only women with a family history of breast cancer develop breast cancer. It is however well documented that 80-85% of women with breast cancer have no family history of breast cancer (Myths about Breast cancer, 2010). It is also a common belief that herbal remedy and dietary supplements can help treat breast cancer though no such remedy has been scientifically proven to treat breast cancer. Furthermore, it is not known how these alternative medicines may interact with orthodox medicines. Belief in the efficacy of traditional methods of therapy and prayer in the cure of breast cancer is widespread among females in developing countries and African-American women (About Breast cancer, 2010, Mitchell et al, 2002, Ishida et al, 2001). Some women actually believe that medical treatment is unnecessary because only God can cure breast cancer (Mitchell et al, 2002). This call for concern because such beliefs and perceptions could have negative outcomes and may partly explain the late presentation with advanced disease by most women. Any educational campaign must therefore take these beliefs into consideration to be able to prepare and deliver messages that are convincing. Another

common myth is that young women are not at risk of developing breast cancer. Though the disease is more common in postmenopausal women, globally 25-30% of women with breast cancer are younger than 50 years (Breast cancer in Young women, 2010, Breast cancer strikes Young women, 2010) and the incidence of breast cancer among young women in developing countries is rising at an alarming rate (Breast cancer Association of Nigeria, 2010, Clegg-Lamptey et al, 2007). In a qualitative study in the USA about young women's perceptions about breast cancer in 2008; overall they did not believe that breast cancer was something they needed to be concerned about although they did perceive the need for more appropriate breast health information to be made available to young women (Johnson & Dickson-Swift, 2008).

In conclusion women need to be educated about breast cancer and to learn early intervention techniques such as BSE at any early age. Lack of knowledge about breast cancer and breast cancer risk may lead to inaccurate perceptions of the disease and a lack of utilisation of early detection techniques. Low level of knowledge and the lack of perceived risk coupled with the inundation breast cancer information that focuses on older women reinforces the belief that young women are not at risk and do not need to be aware of breast cancer. Breast cancer can strike at any age and breast cancer is curable if detected early.

CHAPTER THREE

3.0 Methodology

3.1 Study Area and population

The study was conducted among female soldiers in the Accra and Tema garrisons within the Greater Accra region. The Army has a two-tiered labour structure: Enlisted ranks that comprise industrial, skilled and unskilled workers and officer ranks – that include professionals and leadership positions. Occupations within the army are assigned based on several factors including scores on aptitude, medical and physical capability test, the skills and desires of the members, level of formal education, and the operational needs of the army. Enlisted personnel generally enter after they complete high school and may enlist as young as 17 years of age with parental permission. The length of employment is usually set by the length of the enlistment contract and can vary from 3-6 years. At the end of each contract, the soldier may be offered a new contract based on job performance and the operational needs of the Army. Officers are given a ten year contract which can also be renewed. Options to break a contract are limited to medical conditions, job performance and operational needs. Generally a person may retire from the army after they complete 20 years of active service. Female soldiers and officers usually retire at an average age of 55 years.

The Ghana Army is divided into four categories by rank: from the private soldier (lowest rank in the army) to the Corporal constitutes the junior rank, from the Sergeant to the Warrant Officer constitute the senior non-commissioned officers (SNCOs). Likewise officers are further divided into two groups; from the sub-lieutenants (lowest rank for

officers) to the captain rank constitute junior officers and from the major rank and beyond are senior officers.

Medical screening for enlistment into the service takes place at the 37 Military Hospital in Accra. The 37 Military Hospital which is a Teaching Hospital and UN level IV hospital is the major health care facility for the Ghana Armed Forces. It is a specialist hospital with surgical, medical and public health divisions. The hospital also offers its services to the general public. Soldiers and officers including civilian personnel of the Ghana Armed Forces are entitled to free medical care. In addition, each unit in the country has a medical reception station manned by a medical officer and nurses. These health posts serve as the first point of call. Cases are referred to the military hospital as appropriate. The public health division is responsible for disease control, prevention and health promotion.

Some of the units within Accra and Tema are Forces Pay Office, Armed Forces Central Band, Air Force, Naval Base (Tema), 64 Infantry Regimen, 49 Engineers, Signals Regimen, General Head Quarters and Base Ordinance Depot where personnel are given vocational training useful to the service.

3.2. Study Design

The study was conducted as cross-sectional survey among female soldiers of the GhanaArmed Forces in Accra and Tema from May to June 2010. The survey was designed to investigate the socio- demographic background of the respondents and their level of knowledge, attitudes towards and perceptions about breast cancer.

3.3 Sample size and Sampling Procedure

Based on an estimated level of 30% satisfactory knowledge of all aspects of breast cancer in a study in Nigeria (Odusanya, 2001) and a confidence interval of 95%, with a worst acceptable result of 25% a minimum sample size of 244 was needed for an estimated female soldier population of one thousand (Epi Info Version 3:4:1). A total of 300 females were sampled based on an estimated non-response rate of 10%.

The number of female soldiers and officers was obtained from each unit and probability proportional to the size was be used to determine the number to be interviewed from each unit. On the day of survey for each of the units, all soldiers and officers were assembled and simple random sampling used to select the desired number of participants. Those who consented to participate in the study were interviewed.

3.4 Data Collection and Tools

An interviewer-administered questionnaire consisting of close-ended questions was employed as the survey instrument. This was pretested on a group of soldiers from the Armed Forces Central Band, who were subsequently not included in the study and the questionnaire was further refined. The data collected included socio-demographic characteristics, such as age, educational qualification, marital status and parity. Information was collected on the knowledge of risk factors for breast cancer, warning signs and symptoms about breast cancer, screening methods, performance of breast self examination and perceptions about breast cancer. The standardized widely used breast cancer perception and knowledge survey (BCPKS) developed in the 1980s was adapted for

use in this study. This survey instrument is a modified version of the breast cancer instrument (Price, 1994).

3.5 Summary of Variables

3.5.1 Dependent variables

- Knowledge of risk factors and warning signs.
- Knowledge of screening methods
- Attitudes to Breast cancer and BSE
- Perceptions about Breast cancer

3.5.2 Independent Variables

- Age
- Educational level
- Marital Status
- Parity
- Unit/Station
- Rank

3.6 Quality Control

Research assistants were adequately trained and the questionnaire was pretested in a smaller unit which was not part of the study. There was careful editing and cleaning of data which was double entered into the computer to check for any inconsistency. Inconsistencies in data detected were promptly corrected to ensure good quality data.

3.7. Data Analysis

Each completed questionnaire was graded and scored on factors such as knowledge of risk factors of breast cancer, warning signs and symptoms of breast cancer, knowledge of methods of detecting breast cancer and conduct of breast self examination. This was scored as very good, good, fair or poor. Attitudes to breast cancer and breast self examination was also graded and scored as very good, good, poor or very poor. For example 11 questions were asked on knowledge of risk factors of breast cancer; any respondent who got 10 or 11 out of 11 was said to have very good knowledge; 7-9 correct responses out of 11 was said to have good knowledge; 5-6 correct responses out of 11 was said to have fair knowledge about the risk factors of breast cancer and respondents who had 0-4 correct responses were said to have poor knowledge. 9 questions were also asked about attitudes towards toward breast self examination. Respondents who scored 9 out of 9 were said to have a very good attitude; 6-8 out of 9 were said to have a good attitude; 4-5 out of 9 were said to have a poor attitude and finally 0-3 out of 9 were said to have a very poor attitude to breast self examination.

Statistical analysis was performed using SPSS 16.0 soft ware. Descriptive statistics was use to summarize data and Chi-square test to examine the association between demographic data (age, rank, educational level, marital status, personal and family history of breast cancer) and breast self examination.

3.8 Ethical Consideration

Ethical clearance was sought from Ghana Health Service Ethical Review Board before the study was conducted. Permission was also sought from the Ghana Armed Forces. Individual informed consent was obtained from all participants.

3.9 Study Limitations

(1) The study was limited to female soldiers in Accra and Tema Garrisons and finding may not be generalized to the entire female population in Ghana.

(2) Respondents may present misleading responses due to social desirability bias.

(3) Potential selection bias because participants will be consenting individuals and they differ from non-consenting individuals.

CHAPTER FOUR

4.0 RESULTS

4.1 Characteristics of study participants

Three hundred female soldiers from all units within the Ghana Armed Forces in the Greater Accra region were interviewed. Thirty-one percent (n=94) of the respondents were from the 37 Military Hospital, 8.3% (n=25) from the forces pay office, 10.3% (n=31) from base ordinance depot and the rest (50%) were from all other unit. Eighty-one percent (n=242) of the soldiers were junior rank, 9.3% (n=28) were senior non-commissioned officers (SNCOs), 6.0% (n=18) were junior officers and 4.0% (n=12) were senior officers.

Seventy-one percent (n=212) of the soldiers were less than 30 years of age. The mean age was 28.7 years (sd=6.78) and it ranged from 21-56 years. Only 33.0% (n=99) were married and 70.7% (n=212) had no children.

Ninety-seven percent (n=291) of respondents had attained at least a Junior High School level of education. The predominant religion was Christianity, with 96.0% (n=288) being Christians. Table 2 summarizes the demographic information of the study participants.

Table 4.1: Characteristics of the 300 study participants

Characteristics	Number	Percentage (%)
Age (years)		
<30	212	70.7
30-39	67	22.3
40-49	12	4.0
≥50	9	3.0
Mean (sd)	28.7 (6.78)	
Median	27	
Range	21-56	
Marital Status		
Single	186	62.0
Married	99	33.0
Separated/divorced/Widowed	15	5.0
Highest Educational level		
Primary	8	2.7
Junior High/Middle School	9	3.0
Secondary/ 'O' Level/A level	141	47.0
Tertiary	106	35.3
Vocational	36	12.0
Religion		
Christianity	288	96.0
Islam	10	3.3
Traditional	2	0.7
Unit		
37 Military Hospital	94	31.3
Forces Pay Office (FPO)	25	8.3
Base Ordinance Depot	31	10.3
All other Units	150	50.0
Rank		
Junior Rank	242	80.7
Senior Non-commissioned Officers	28	9.3
Junior Officers	18	6.0
Senior Officers	12	4.0

4.2 Knowledge about warning signs and symptoms of Breast Cancer

Three quarters of respondents generally had good knowledge about warning signs and symptoms of breast cancer. Seventy-three percent (n=219) of respondents indicated that an unusual painless lump is a warning sign of breast cancer. However, only 43.3% (n=130) of respondents knew that a swelling or mass in the axilla could be a warning sign of breast cancer and only 41.7% (n=125) of respondents could tell that nipple inversion or retraction is a warning sign of breast cancer. Overall, 27.7% (n=83) soldiers' knowledge were rated as very good, 23.3% (n=70) as good, 16.0% (n=48) as fair and 33.0% (n=99) as poor. Table 3 shows the knowledge of breast cancer among female soldiers and officers.

Table 4.2: Knowledge of warning signs and symptoms of breast cancer

Signs/symptoms of breast cancer	No. of respondents with correct answers (n=300)	Percentage (%)
Unusual painless breast lump	219	73.0
Multiple breast lumps	243	81.0
Swelling in the armpit (lymphadenopathy)	130	43.3
Discolouration of the skin of the breast	194	64.7
A dimple on the breast	152	50.7
Unusual nipple discharge	226	75.3
Nipple inversion/retraction	125	41.7

4.2.1 Factors associated with soldiers' knowledge about warning signs and symptom of Breast Cancer.

The chi-squared test was used to investigate the effect of education, unit of work, rank, age and religion on the soldiers' knowledge about the warning signs and symptoms of breast cancer. The findings are presented in table 4.3 below.

Table 4.3: Association between demographic factors and knowledge about warning signs and symptoms

Variable	x^2	df	p-value
Age	4.025	1	0.045
Marital status	5.621	3	0.132
Level of education	12.417	4	0.015
Religion	0.786	3	0.853
Unit of work	13.143	1	<0.001
Rank	1.122	1	0.290
Number of children	0.843	1	0.358

One's level of education and unit of work were significantly associated with knowledge about signs and symptoms of breast cancer. Soldiers and officers who have had higher education (tertiary education) were more knowledgeable about the signs and symptoms of breast cancer. Soldiers and officers from the 37 military hospital most of whom are nurses were also more knowledgeable about the disease compared to those from all other units. Age was also significantly associated with knowledge of the signs and symptoms of breast cancer (x^2 = 4.025, df=1, p= 0.05). Women who were older (>40 years) were more likely to be knowledgeable. Neither rank nor religion was associated with knowledge about the signs and symptoms of breast cancer.

4.3 Knowledge about risk factors for breast cancer

As high as 78% (n=234) of respondents had poor knowledge about the risk factors for breast cancer, only 3.7% (n=11) have very good knowledge about the risk factors for breast cancer. Figure 1 below shows the knowledge score of respondent on risk factors for breast cancer.

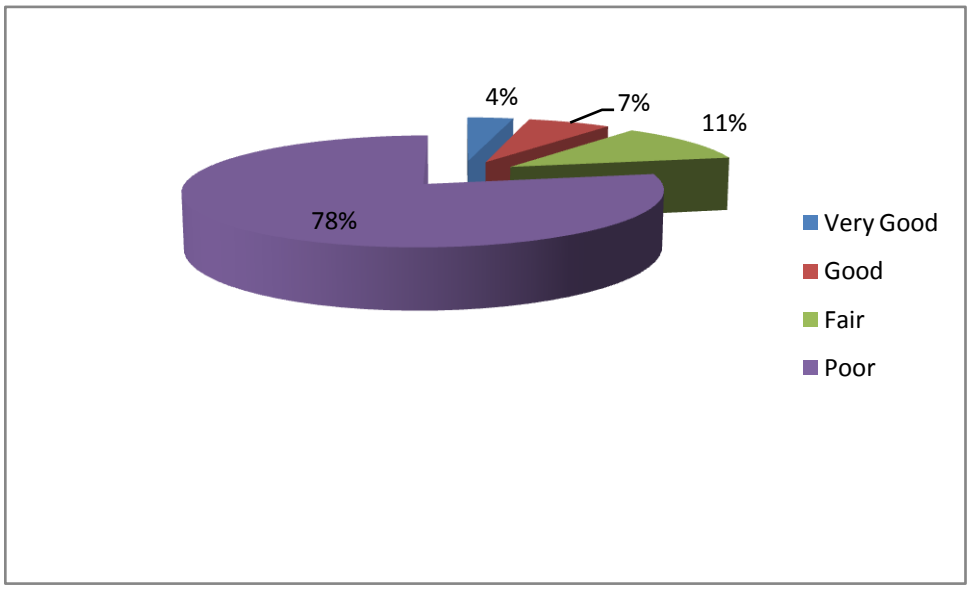

Figure 4.1: Pie chart showing the level of knowledge about risk factors of breast cancer among the 300 respondents.

Only 30.7% (n=92) of respondents knew that the risk of developing breast cancer increases with increasing age. Also only 12.3% (n=37) and 10% (n=30) knew that early menarche

and late menopause respectively are risk factors of breast cancer. Table 5 shows the respondents' knowledge about the risk factors for breast cancer.

Table 4.4: Knowledge of risk factors for Breast cancer

Risk factors of Breast Cancer	**No. of respondents with correct answers (n=300)**	**Percentage (%)**
Age	92	30.7
Family History	109	36.3
Early Menarche	37	12.3
Late menopause	30	10.0
Full term pregnancy and delivery after 30 years	32	10.7
Breastfeeding confers lower risk	88	29.3
Multiparity confers lower risk	33	11.0
Fatty Foods	125	41.7
Excessive Alcohol intake	102	34.0
Hormone replacement therapy	98	32.7
Bad personal hygiene	91	30.3

4.3.1 Factors associated with knowledge of the risk factors for breast cancer

The level of education, rank and one's unit of work showed significant relationship with respondents' knowledge of factors for breast cancer. Officers and soldiers who have had tertiary education were more knowledgeable. Also respondents from 37 Miliatry Hospital, most of whom are nurses were also more knowledgeable compared all other units. Age,

religion and number of children did not show any significant association with knowledge of risk factors for breast cancer. These findings are summarized in the table below.

Table 4.5: Association between demographic factors and knowledge of risk factors for breast cancer

Variable	x^2	Df	p-value
Age	1.325	1	0.125
Marital status	8.756	3	0.033
Level of education	28.179	4	<0.001
Religion	0.589	3	0.899
Unit of work	27.338	1	<0.001
Rank	23.195	1	<0.001
Number of children	0.343	1	0.558

4.4 Knowledge of methods of detecting Breast Cancer and BSE

Knowledge of methods of detecting breast cancer was also generally good as only 13% (n=39) had poor knowledge of methods of detecting breast cancer. Mammography was the least known method of detecting breast cancer 39.7% (n=119) and clinical breast examination was the most well known method 88.3% (n=265). Eighty-one percent (n=243) knew that BSE is a method of detecting breast cancer and 66% of respondent also indicated that breast ultrasound scan could detect breast cancer. Figure 2 shows the level of knowledge of methods of detecting breast cancer.

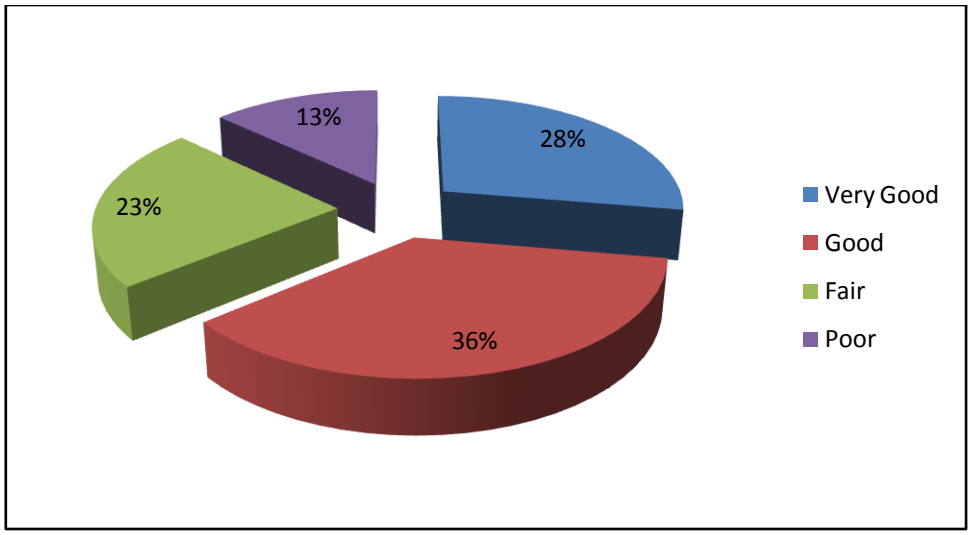

Figure 4.2: Pie chart showing respondents overall score on knowledge of methods of detecting breast cancer.

Only a third of respondents 32.3% (n=97) had satisfactory Knowledge of conduct of Breast Self-Examination as illustrated in figure 3 below.

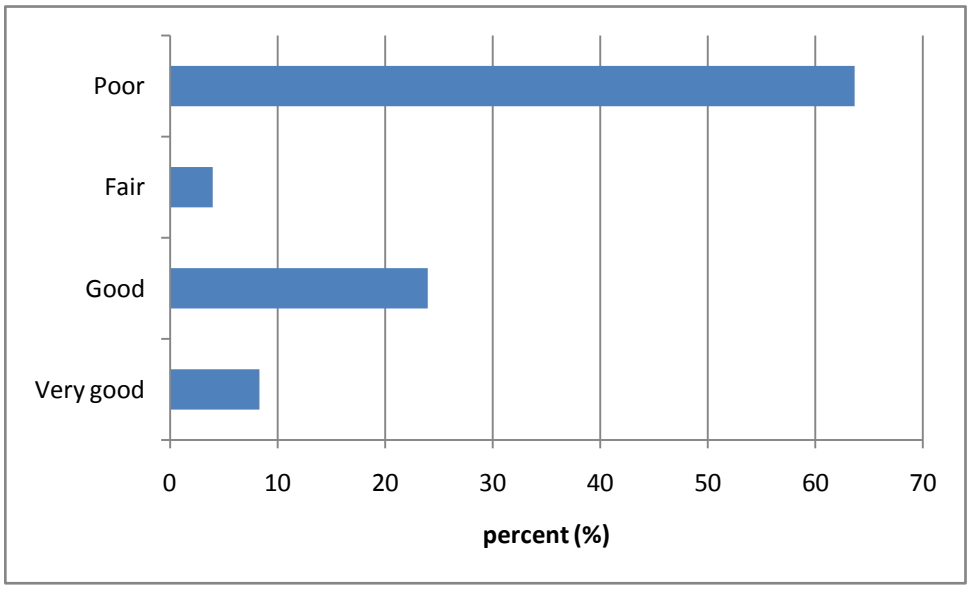

Figure 4.3: Bar chart showing score of knowledge of conduct of breast self-examination

A little over a third of respondents 39.7% (n=119) knew that health authorities recommend that breast self examination should be performed monthly but only 20.3% (n=61) actually performed BSE monthly. Majority, 42.7% (n=128) performed BSE occasionally and 16% (n=48) did not perform BSE at all. Table 7 summarizes respondents' responses on knowledge and conduct of breast self-examination.

Table 4.6: Knowledge and conduct of breast self-examination

Statement (variable)	Number (n=300)	Percentage (%)
How often should breast self examination be performed?		
Daily	47	15.7
Weekly	27	9.0
Monthly	119	39.7
Anytime	53	17.7
Don't know	54	18.0
How often do you perform Breast self examination?		
Daily	35	11.7
Weekly	28	9.3
Monthly	61	20.3
Occasionally	128	42.7
Not at all	48	16.0
Ability to identify the correct sequence of steps in Breast Self-examination (out of 4 options provided)	101	33.7

4.4.1 Factors associated with knowledge of methods of detecting breast cancer

Again one's levels of education, unit of work and rank showed significant association with methods of detecting breast cancer. The other demographic factors did not show any significant relationship as summarized in table 8 below.

Table 4.7: Association between demographic factors and knowledge of methods of detecting breast cancer

Variable	x^2	df	p-value
Age	5.183	1	0.023
Marital status	3.793	3	0.285
Level of education	20.310	4	<0.001
Religion	1.196	3	0.550
Unit of work	21.401	1	<0.001
Rank	11.802	1	0.001
Number of children	1.219	1	0.269

4.5 Attitudes to breast cancer and breast self-examination

There were four different statements about attitudes to breast cancer. Seventy-seven percent (n=230) agreed to the statement that breast cancer is curable. Ninety-four percent (n=282) said they would encourage any close relative who develops breast cancer to seek medical care than seek traditional medicine or go to a prayer camp. Ninety-one percent (n=273) of respondents indicated they would see a doctor first if they developed breast cancer and 79.0% (n=237) and 55.3% (n=166) indicated they would agree to lumpectomy and mastectomy respectively. Seventy-one percent (n=214) of respondents also indicated they would report immediately to the hospital on discovering any usual breast lump.

Only 5% (n=15) and 3.7 % (n=11) of respondents indicated they would first go to prayer camp and use traditional medicine respectively. Responses of respondents to questions asked are summarized in table 9 below.

Table 4.8: Attitude to breast cancer

Statement (variable)	Number (n=300)	Percentage (%)
Breast cancer is curable		
Agree	230	76.7
Disagree	50	16.7
Don't know	20	6.7
Attitude if close relative of respondent develops breast cancer		
Feel sorry for her because she will die soon	15	5.0
Encourage her to seek medical care	282	94.0
Use traditional medicine	2	0.7
Go to a prayer camp	1	0.3
Attitude if respondent develops breast cancer*		
See a doctor first	273	91.0
Go to a prayer camp first	15	5
Use traditional medicine first	11	3.7
Agree to lumpectomy	237	79.0
Agree to mastectomy	166	55.3
Do nothing	1	0.3
Time period respondent will see a doctor on discovering an unusually breast lump		
Within 1 month	214	71.3
1-3 months	31	10.3
More than 3 months	53	17.7
Not at all	2	0.7

* Percentages do not add up to 100% as multiple responses were given.

On the whole majority of respondents had a healthy attitude to breast cancer. The majority indicated that breast self-examination is not difficult, uncomfortable or time consuming, 78.7%, 76.3% and 78.7% respectively. Similarly, a large majority had a healthy attitude to Breast Self-Examination as illustrated in figure 4.

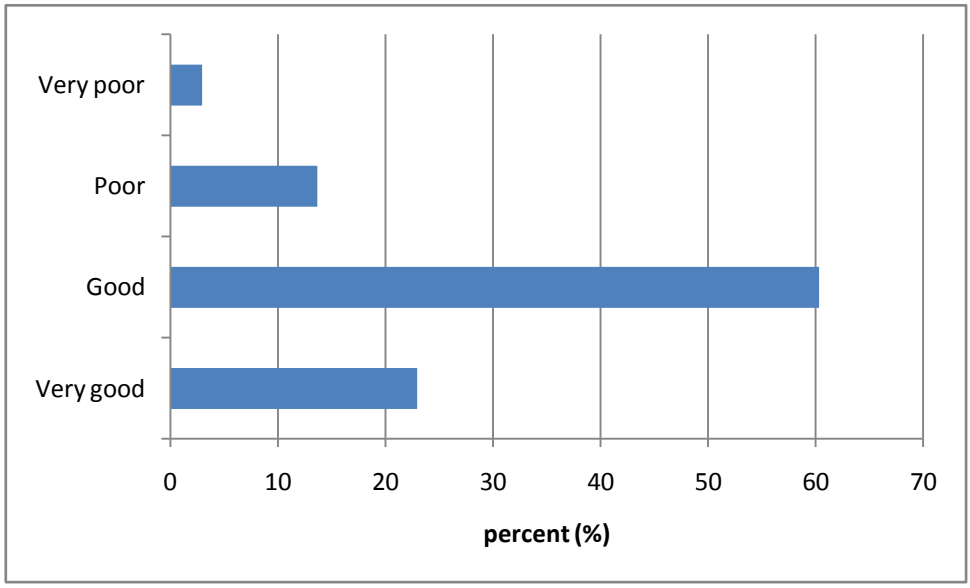

Figure 4.4: Bar chart showing score of respondents on attitudes to breast self-examination

4.5.1 Factors associated with attitude towards breast cancer.

Chi-squared test used to establish the effect of demographic factors and attitudes to breast cancer are presented in table 10 below.

Table 4.9: Association between demographic factors and attitudes to breast cancer

Variable	x^2	df	p-value
Age	0.000	1	1.00
Marital status	2.868	3	0.412
Level of education	14.654	4	0.005
Religion	1.068	3	0.785
Unit of work	5.729	1	0.017
Rank	0.450	1	0.502
Number of children	0.001	1	0.970

The level of one's education influenced her attitude to breast cancer. Soldiers and officers who have had higher education had a healthier attitude to breast cancer. Respondent from the 37 Military Hospital also had a positive attitude to breast cancer compared to those from all other units. Table 4.10 summarizes the rest of the results.

Table 4.10: Attitudes towards breast self-examination

Variable (Statement)	No. of respondents who disagree to statement	Percentage (%)
Breast Self Examination is difficult	236	78.7
Breast Self Examination is uncomfortable	229	76.3
Breast Self Examination is time consuming.	236	78.7
I have no problem with my breast so BSE is not necessary now.	279	93.0
Not capable of detecting abnormalities during BSE	160	53.3
Afraid to find a problem with my breast so I better not find out.	285	95.0
I am too young to have breast cancer so BSE is not necessary now.	275	92.7
I would prefer a nurse/doctor to examine my breast.	108	36.0
Perform BSE regularly if I knew the benefits.	39	13.0

4.6 Perceptions about breast cancer

Individual items within the breast cancer knowledge and perception scale were evaluated to better understand the respondents' perception about breast cancer.

Forty percent (n=120) of respondents believe that a blow to the breast can cause breast cancer and a third of respondents, 33% (n=100) believe that breast cancer can be prevented by breastfeeding and 20% of respondents believe that a woman's chances of surviving

breast cancer is low even if found early. It is also a perception amongst some respondents (4.0%) that getting breast cancer is God's punishment and 17.3% have the perception that getting breast cancer is death sentence for people. The results of the results are shown in table 4.11.

Table 4.11: Perceptions about breast cancer

Statement	**No. of respondents who agreed (n=300)**	**Percentage** (%)
Breast cancer is more common in women with big breast	48	16
A blow to the breast can cause breast cancer	120	40
Breast cancer can be caused by anger and stress	80	26.7
Getting treated for breast cancer is often worse than the actual disease.	71	23.7
Surgery can expose breast cancer to the air and cause it to be spread to other parts of the body.	54	18.0
Having a mammogram can cause breast cancer to spread.	16	5.3
Getting Breast cancer is God's punishment.	12	4.0
A woman's chance of surviving breast cancer is very low even if it is found early.	60	20.0
Shaking hands, touching or kissing someone with breast cancer makes people uncomfortable.	49	16.3
Breast cancer can be prevented by breast feeding.	100	33.2
Changes found in the breast during breast self examination are usually cancer.	65	21.7
Getting breast cancer is death sentence for people	52	17.3

CHAPTER FIVE

5.0 DISCUSSION

5.1 Introduction

The general objective of this study was to determine the knowledge, attitudes and perception of breast cancer among female soldiers of the Ghana Armed Forces. The respondents' perceived risk of developing breast cancer was not evaluated in this study and no respondent was screened for breast cancer.

The mean age of respondents in this study was 28.7 years (sd=6.78, range=21-56 years). Only 9 (3.0%) respondents were over 50 years which is consistent with the relatively young population required of any armed forces of a country. A third (35.3%) have had tertiary education, and 2.7% (n=8) have had only primary education. Nine-six percent of respondents were Christians.

5.2 Knowledge about Breast Cancer

Generally a large majority (78.0%) of study participants had poor knowledge of the risk factors of breast cancer. Only 10.4% of the respondents had good knowledge about the risk factors for breast cancer. Respondents' knowledge on warning signs and symptoms of breast cancer was however better as only 33% (n-99) of the respondents had a poor score. Fifty-one percent (n=153) had good knowledge score on signs and symptoms of breast cancer and 16% (n=48) had a fair knowledge score. Furthermore a large majority of respondents in this study had good knowledge of methods of detecting breast cancer. As high as 192 respondents (64%) had good knowledge score, 23% (n=69) had a fair

knowledge score and only 13% (n=39) had a poor knowledge score. Clinical breast examination was the most well known method, 88.3% (n=265).

These results are in keeping with findings in some studies but at variance with the reports of others.

The rather low level of knowledge of risk factors of breast cancer in this study is comparable to that found in a study of a section of Nigerian teachers who also had very little understanding about the risk factors of the disease (Odusanya, 2001). These findings however sharply contrast with reports from the western world. In a study of women's knowledge and beliefs about breast cancer among British women, Grunfeld and colleagues (2002) noted that 90%, 70% and 60% were able to quantify the relative risk of breast cancer associated with family history, previous history of breast cancer and smoking respectively. In this current study only 36.3% were able to indicate that a positive family history is a risk factor for breast cancer and only 30.7% (n=92%) were able to tell that the risk of developing the disease increases with age. Interestingly, about a third of respondents 30.3% (n=91) indicated that bad personal hygiene is a risk factor of breast cancer.

With respect to knowledge of warning signs and symptoms, finding from this study are quite comparable to that in the study by Grunfeld and others (2002) among British women. These authors found that over 70% of the study participants were able to identify painless breast lump and nipple discharge or bleeding as symptoms of breast cancer. In this study, 73.0% and 75.3% of respondents were able to indicate that painless breast lump and nipple discharge respectively are warning signs of breast cancer. However, just under forty-four

percent of respondents in the present study were able to recognize other signs and symptoms such as nipple retraction or inversion and a swelling in the armpit (enlarged lymph nodes). A similar survey in a West African Country, Nigeria among school teachers revealed that though many of the respondents knew about breast cancer as a serious disease they were not sure of the warning signs and symptoms of the disease (Odusanya, 2001).

Majority of participants in this study demonstrated very good knowledge about methods of detecting breast cancer. Surprisingly mammography was the least known method of detecting breast cancer and this is in keeping with the study in Nigeria among teachers who also were not aware of diagnostic tools such as mammography and ultrasound scan which aid early diagnosis and prevent the morbidity and mortality associated with late presentation (Odusanya, 2001). However, in another survey in an urban city in Nigeria, the awareness of mammography as diagnostic method was very high (80.7%) but an extremely low knowledge of mammography as a screening method for breast cancer was found (Akhigbe & Omuemu, 2009). Although mammography is presently the most sensitive of all the methods of detecting breast cancer, it's probably not popular among women in developing countries because of the huge cost implications and this may explain why it is the least known method in this present study and others conducted in other developing countries.

Eighty percent of respondents in this study knew that BSE is a screening method of breast cancer, far higher than 43.2% among a cross section of Nigeria women (Okobia et al, 2006).

5.3 Factors Associated with Breast Cancer Knowledge

A positive association between one's level of education and knowledge about the risk factors, warning signs and symptoms, methods of detecting breast cancer and knowledge of conduct of Breast Self Examination (BSE) was demonstrated in this study. One's level of education also influenced her attitude to breast cancer positively. No association was found between age, religion, marital status, parity and general knowledge of breast cancer. These findings are comparable to those noted among women in Nigeria and the United Kingdom (Okobia et al, 2006; Grunfeld et al, 2002). In the Nigerian study, women with education higher than high school and those in professional jobs such as teaching and nursing had significantly higher knowledge about breast cancer ($p<0.001$). However age, marital status and religion were not significantly related to knowledge score just as was observed in this study. In the UK, educated and professional women had greater knowledge of risk factors ($p<0.001$) and symptoms/signs of breast cancer ($p<0.001$).

5.4 Knowledge and conduct of Breast Self-Examination

Though as many as 84% of women in this present study reported conducting breast self-examination, only 33.7% (n=101) were able to identify the correct sequence of steps in BSE and only 20.3% (n=61) performed BSE at the correct monthly interval. The proportion of women performing monthly breast self-examination in this study was much lower than the 40% reported in another study in Nigeria (Odusanya & Tayo 2001) and the 42.4% reported in a study among female soldiers in the United States of America (Erickson et al, 2000). A large majority of respondents (83.3%) in this study however had a very good attitude toward BSE.

5.5 Attitude towards Breast Cancer and Treatment

A good number of participants in this study had a good attitude to breast cancer and its treatment. A large majority, 91.0% (n=273) indicated they would see a doctor first if they developed any breast disease (cancer) and only 5% (n=15) and 3.7% (n=11) indicated they would first visit a prayer camp or use traditional medicine respectively. Furthermore, 71.3% (n=214) indicated they would see a doctor within a month on noticing any unusual breast lump. This positive attitude by a majority of respondents is comparable to that found in a cross-section of Nigerian women (Okobia et al, 2006). A little over half of the respondents (55.3%) in this study indicated they wound agree to mastectomy should they develop the disease and this is also comparable to that found in the survey among teachers in Nigeria where 50.0% gave a similar response (Odusanyo, 2001). It was encouraging to learn that as high as 76.7% (n=230) of respondents in this study knew that the disease is curable.

5.6 Perceptions about Breast Cancer

Regarding perceptions of respondents about breast cancer, 16% (n=48) indicated that breast cancer is more common in women with big breast and as many as 45.0% (n= 120) respondents also indicated that a blow to the breast can cause breast cancer. Furthermore, 21.7% (n=65) also indicated that changes found in the breast during breast self examination are usually cancer.

A survey on breast cancer perceptions among Iranian women revealed that slightly more than two-thirds (67%) of the respondents held the misperception that big breasts increased

the likelihood of developing breast cancer (Parsa & Kandiah, 2005). However a similar survey among college students in the USA revealed that relatively fewer respondents (7.5%), compared to this present study and the Iranian study said breast cancer is more common in women with big breast (Powe et al, 2005). In this same study in the USA, 18.2% and 14.5% respectively indicated that a blow to the breast can cause breast cancer and changes found in the breast during breast self examination are usually cancer. Some respondents in the USA study were nurses and this probably explains why their responses are relatively better than found in this study because a sound knowledge about a subject influences perceptions about the subject.

In another survey in the USA, breast cancer beliefs varied by age as women under 50 years were more likely to believe that breast cancer can be prevented by breast feeding ($p=0.019$) (Rhoads et al, 2000). In this present study although a third of respondents (33.3%) indicated that breast cancer can be prevented by breast feeding, age did not have any statistically significant influence in this regard ($p=0.472$). Current public opinion on breast feeding may have played a role in this perception. Breast feeding has recently enjoyed renewed popularity and has been hailed for its immense benefits to the baby. These respondents may have just extrapolated these benefits to their own health.

5.7 Limitations of the study

The present study is exploratory in nature. In interpreting the findings, its limitations should be taken into consideration. Since this study was based on respondents who were willing to be part of the study, both selection and responder bias can not be ignored. In some units, the commanding Officers (unit heads) compelled female personnel to be part

of the study. Such respondents may have given misleading responses. Furthermore, respondents may not be representative of entire female soldiers and officers of the Ghana Armed Forces since the study was confined to Accra and Tema in the Greater Accra region. Therefore, the results may not be generalized to the entire uniformed personnel of the GAF and should be interpreted cautiously.

CHAPTER SIX

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

The results of this study have revealed that despite the generally healthy attitude to breast cancer and good health-seeking behaviour with respect to the disease, over two-thirds (78%) of respondents have poor knowledge and understanding of the disease especially its risk factors. Only a third (33.7%) were proficient in breast self examination.

Since knowledge about a subject has a huge influence on perception, it was not surprising to find that about a 40.0% of respondents had misconceptions about the disease. These misconceptions have been shown to significantly influence delay in seeking help at hospitals.

Respondents knowledge and performance of breast self-examination was generally very poor, only a third showed good knowledge about performance of breast self examination and only 20.3% performed BSE monthly as recommended. Given the non-availability of adequate data to justify population-based mammography screening in developing countries, the high cost and skilled expertise required for the procedure, current efforts at breast cancer screening among female personnel of the Ghana Armed Forces and Ghanaian women as a whole must rely on a combination of breast self-examination and clinical breast examination. Women however need to be knowledgeable about breast cancer to stimulate their interest in screening. The disease which strikes both the young and old is curable if detected early. Breast cancer educational campaign messages must therefore be accurate to get all women well informed about the disease. This will go a long way to

reduce late presentation of the disease at the hospital and subsequently reduce the high breast cancer morbidity and mortality in Ghana.

To the extent that these results reflect the current knowledge and perceptions of female soldiers and officers of the Ghana Armed Forces in general about breast cancer, they call for renewed and innovative efforts directed at enhancing breast cancer knowledge and early detection practices.

6.2 Recommendations

6.2.1 Recommendations to the Ghana Armed Forces

1. The public health division of the 37 Military Hospital should conduct clinical breast examination for female soldiers and officers once every two years. Since every soldier and officer goes on a United Nations Peace Keeping Mission at least once every two or three years and are evaluated medically before embarking on this trip, advantage should be taken during this period to carry out CBE for all female troops.

2. The public health division of the 37 Military Hospitals must step up its educational campaign on breast cancer. Educational campaign messages must be detailed and interactive as much as possible. The techniques of breast self-examination should be repeatedly demonstrated during these sessions.

6.2.2 Recommendation to the Government

1. Government should consider in cooperating breast cancer screening programme into the National Health Insurance Scheme (NHIS). This will not only help create awareness about the disease but also aid early detection of breast cancer.

2. To increase awareness and subsequently the knowledge and understanding of the disease, the Ministry of Health should consider instituting breast cancer awareness and screening week or month. During this period in the year the Ministry of Health and other campaign groups will be expected to educate and screen women through out the country.

6.2.3 Recommendations to Breast cancer Campaign Groups

1. In planning educational programmes, it would be extremely useful to provide materials that show that many women have detected abnormalities themselves and explain the benefits that might be gained from BSE. Misconceptions and myths about the disease must be properly addressed.

2. Breast cancer campaign groups should also educate women about non-lump breast cancer signs and symptoms since knowledge in this area is poor among some women.

3. Health care providers may also use each encounter with female patients as an opportunity to educate them and also conduct a clinical breast examination if possible.

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APPENDIX I: QUESTIONNAIRE

BREAST CANCER: KNOWLEDGE, ATTITUDES AND PERCEPTIONS AMONG FEMALE SOLDIERS OF THE GHANA ARMED FORCES (ACCRA AND TEMA)

DEMOGRAPHIC CHARACTERISTICS	FORM NUMBER ☐☐☐	
QUESTION NUMBER	QUESTION	ANSWERS AND CODES
1	HOW OLD ARE YOU?	AGE (YEARS) ☐☐
2.	RANK	1. ☐ JUNIOR RANK 2. ☐ SNCO 3. ☐ JNR. OFFICER 4. ☐ SNR. OFFICER
3	UNIT	1. ☐ 37 MIL. HOSP. 2. ☐ FPO 3. ☐ BOD 2. ☐ ALL OTHERS
4	MARITAL STATUS	1. MARRIED ☐ 2. SINGLE ☐ 3. SEPARATED/DIVORCED ☐ 4. WIDOW ☐
5	HIGHEST EDUCATIONAL LEVEL	1. PRIMARY ☐ 2. JHS/MIDDLE SCHOOL ☐ 3. SHS /'O' LEVEL/ 'A' LEVEL ☐ 4. TERTIARY ☐ 5. VOCATIONAL ☐

6.	RELIGION	1. CHRISTIANITY ☐ 2.ISLAM ☐ 3.TRADITIONAL ☐ 4. OTHERS; SPECIFY ……
7	NUMBER OF CHILDREN	1. 1 ☐ 2. 2 ☐ 3. 3 ☐ 4. ≥ 4 ☐ 5. NONE ☐
KNOWLEDGE ABOUT RISK FACTORS	USE THE FOLLOWING SCALE TO GIVE **ONE** RESPONSE TO THE FOLLOWING QUESTIONS IN THE BOX **1. AGREE 2. DISAGREE 3. DON'T KNOW**	
8	ONE'S RISK OF DEVELOPING BREAST CANCER INCREASES WITH INCREASING AGE	☐
9.	IF ONES SISTER, MOTHER, COUSIN OR GRANDMOTHER HAS/HAD BREAST CANCER IT INCREASES ONE'S RISK OF DEVELOPING BREAST CANCER	☐
10.	A WOMAN CAN DEVELOP BREAST CANCER FROM BAD PERSONAL HYGIENE	☐
11	A GIRL WHO STARTS MENSTRUATING BEFORE AGE 13 IS AT RISK OF DEVELOPING BREAST CANCER LATER ON IN LIFE	☐
12	A WOMAN WHO STOPS MENSTRUATING AFTER 50 YEARS IS AT RISK OF DEVELOPING BREAST CANCER	☐

13	A WOMAN WHO HAS HER FIRST FULL TERM PREGNANCY AFTER 30 YEARS IS AT RISK OF DEVELOPING BREAST CANCER	☐
14	BREASTFEEDING FOR MORE THAN ONE YEAR REDUCES A WOMAN'S RISK OF DEVELOPING BREAST CANCER	☐
15	HAVING MANY CHILDREN REDUCES A WOMAN'S RISK OF DEVELOPING BREAST CANCER	☐
16	EATING A LOT OF FATTY FOODS MAY INCREASE A WOMAN'S RISK OF DEVELOPING BREAST CANCER	☐
17	EXCESSIVE ALCOHOL INTAKE INCREASES ONES RISK OF DEVELOPING BREAST CANCER	☐
18	HORMONE REPLACEMENT THERAPY INCREASES A WOMAN'S RISK OF DEVELOPING BREAST CACER	☐
KNOWLEDGE OF SIGNS AND SYMPTOMS OF BREAST CANCER	USE THE FOLLOWING SCALE TO GIVE ONE RESPONSE TO THE FOLLOWING QUESTIONS IN THE BOX **1. AGREE 2. DISAGREE 3.DON'T KNOW**	
19	BREAST CANCER MAY MANIFEST AS AN UN USUAL PAINLESS LUMP	☐
20	MULTIPLE BREAST LUMPS IS A WARNING SIGN OF BREAST CANCER	☐

21	A SWELLING IN THE AXILLA (ARMPIT) MAY BE A SIGN OF BREAST CANCER	☐
22	DISCOLORATION OF THE SKIN OF THE BREAST MAY SUGGEST BREAST CANCER	☐
23	A DIMPLE ON THE SKIN OF THE BREAST MAY SUGGEST BREAST CANCER	☐
24	AN UNUSUAL NIPPLE DISCHARGE SUCH AS BLOODY NIPPLE DISCHARGE MAY SUGGEST BREAST CANCER	☐
25	THE NORMAL NIPPLE POINTS DOWNWARDS AND OUTWARDS, ANY OTHER POSITION MAY SUGGEST BREAST CANCER	☐
KNOWLEDGE OF METHODS OF DETECTING BREAST CANCER	USE THE FOLLOWING SCALE TO GIVE ONE RESPONSE TO THE FOLLOWING QUESTIONS. WRITE NUMBER IN BOX. **1. AGREE 2. DISAGREE 3. DON'T KNOW**	
26	HAVING A HEALTH CARE PROVIDER EXAMINE YOUR BREAST (CLINICAL BREAST EXAMINATION) IS A METHOD OF DETECTING BREASTCANCER	☐
27	EXAMINING YOUR OWN BREAST IS A METHOD OF DETECTING BREAST CANCER	☐
28	A MAMMOGRAM IS A METHOD OF DETECTING BREASTCANCER	☐

29	ULTRA SOUND SCAN OF THE BREAST IS USED TO DETECT BREAST CANCER	☐
KNOWLEDGE OF CONDUCT OF BREAST SELF EXAMINATION	PLEASE RESPOND APPROXIMATELY TO THE FOLLOWING QUESTIONS BY TICKING ONLY ONE BOX	
30	HOW OFTEN SHOULD BREAST SELF EXAMINATION BE PERFORMED?	1. ☐ DAILY 2. ☐ WEEKLY 3. ☐ MONTHLY 4. ☐ ANYTIME 5. ☐ DON'T KNOW 6. OTHERS, SPECIFY ……..
31	HOW OFTEN DO YOU PERFORM BREAST SELF EXAMINATION?	1. ☐ DAILY 2. ☐ WEEKLY 3. ☐ MONTHLY 4. ☐ OCASSIONALLY 5. ☐ NOT AT ALL 6. OTHERS, SPECIFY …….

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WHICH OF THE FOLLOWING IS THE CORRECT SEQUENCE OF STEPS IN BREAST SELF EXAMINATION (FOUR OPTIONS)

4. I DON'T KNOW ☐

1. ☐ 2. ☐ 3. ☐ .

1. STAND BEFORE A MIRROR AND WATCH FOR ANY CHANGES. 2. EXAMINE THE RIGHT BREAST WITH THE LEFT FINGER PADS. 3. LAY DOWN ON A PILLOW WITH RIGHT HAND BEHIND HEAD, THEN FEEL RIGHTBREAST FOR LUMPS WITH LEFT FINGER PADS AND VICE VERSA. 4. RAISE BOTH HANDS AND WATCH FOR ANY CHANGES.	1. STAND BEFORE A MIRROR AND WATCH FOR ANY CHANGES. 2. RAISE BOTH HANDS AND WATCH FOR ANY CHANGES. 3. WITH LEFT HAND UP, EXAMINE THE LEFT BREAST WITH THE RIGHT FINGER PADS AND VICE VERSA. 4. LAY DOWN ON A PILLOW WITH RIGHT HAND BEHIND HEAD AND FEEL RIGHT BREAST FOR LUMPS WITH LEFT FINGER PADS AND VICE VERSA.	1. STAND BEFORE A MIRROR AND WATCH FOR ANY CHANGES. 2. LAY DOWN ON A PILLOW WITH RIGHT HAND BEHIND HEAD AND FEEL RIGHT BREAST FOR LUMPS WITH LEFT FINGER PADS AND VICEVERSA. 3. RAISE BOTH HANDS AND WATCH FOR ANY CHANGES. 4. EXAMINE THE RIGHT BREAST WITH THE LEFT FINGER PADS AND VICE VERSA.

ATTITUDES TO BREAST CANCER	PLEASE RESPOND APPROPRAITELY TO THE FOLLOWING QUESTIONS BY TICKING ONLY ONE BOX	
33	BREAST CANCER IS CURABLE	1. ☐ AGREE 2. ☐ DISAGREE 3. ☐ DON'T KONW
34	HOW WOULD YOU RESPOND IF SOMEONE CLOSE TO YOU (SISTER, MOTHER, COUSIN) IS DIAGNOSED WITH BREAST CANCER?	1. ☐ FEEL SORRY FOR HER BECAUSE SHE WILL DIE SOON. 2. ☐ ENCOURAGE HER TO SEEK MEDICAL CARE 3. ☐ ADVICE HER TO SEEK TRADITIONAL MEDICINE 4. ☐ ADVICE HER TO GO TO A PRAYER CAMP. 5. OTHERS, SPECIFY ……. ……..
35	HOW WOULD YOU RESPOND IF YOU DEVELOPED BREAST CANCER? (IN ORDER OF PREFERENCE/PRIORITY, NOT MORE THAN THREE OPTIONS)	1. ☐ SEE A DOCTOR 2. ☐ GO TO A PRAYER CAMP 3. ☐ USE TRADITIONALMEDICINE 4. ☐ AGREE TO LUMPECTOMY 5. ☐ AGREE TO MASECTOMY 6. ☐ DO NOTHING
36	HOW SOON WILL YOU SEE A DOCTOR IF YOU FELT AN UNUSUAL BREAST LUMP?	1. ☐ 1-3 MONTHS 2. ☐ MORE THAN 3 MTHS 3. ☐ WITHIN 1 MONTH 4. ☐ NOT AT ALL

ATTITUDES TOWARDS BSE	USE THE FOLLOWING SCALE TO GIVE ONE RESPONSE TO THE FOLLOWING QUESTIONS. WRITE NUMBER IN BOX. **1. AGREE** **2. DISAGREE** **3. DON'T KNOW**	
37	I DO NOT HAVE ANY PROBLEM IN MY BREAST, SO THERE IS NO REASON FOR ME TO EXAMINIE MY BREAST	☐
38	BREAST SELF-EXAMINATION IS DIFFICULT	☐
39	BREAST SELF EXAMINATION IS UNCOMFOTABLE	☐
40	BREAST SELF EXAMINATION IS TIME CONSUMING	☐
41	IF I EXAMINE MY BREAST, I CAN NOT DETECT ABNORMALITIES IN MY BREAST	☐
42	IF I KNEW THE BENEFITS OF BREAST SELF EXAMINATION, I WOULD DO IT REGULARLY	☐
43	I AM AFRAID I WOULD FIND A PROBLEM WITH MY BREAST, SO I BETTER NOT FIND OUT	☐

44	I AM TOO YOUNG TO HAVE BREAST CANCER SO BSE IS NOT NECESSARY NOW	☐
45	I WOULD PREFER A NURSE/DOCTOR TO EXAMINE MY BREAST	☐
PERCEPTIONS ABOUT BREAST CANCER	USE THE FOLLOWING SCALE TO GIVE **ONE** RESPONSE TO THE FOLLOWING QUESTIONS IN THE BOX. **1. AGREE 2. DISAGREE 3. SKIP**	
46	BREAST CANCER IS MORE COMMON IN WOMEN WITH BIG BREAST	☐
47	A BLOW TO THE BREAST CAN CAUSE BREAST CANCER	☐
48	BREAST CANCER CAN BE CAUSED BY ANGER AND STRESS	☐
49	GETTING TREATED FOR BREAST CANCER IS OFTEN WORSE THAN THE ACTUAL DISEASE	☐

50	SURGERY CAN EXPOSE BREAST CANCER TO THE AIR AND CAUSE IT TO SPREAD (TO OTHER PARTS OF THE BODY)	☐
51	HAVING A MAMMOGRAM CAN CAUSE BREAST CANCER TO SPREAD. (*SKIP IF RESPONDENT DOES NOT KNOW ANYTHING ABOUT MAMMOGRAPHY)	☐
52	GETTING BREAST CANCER IS GOD'S PUNISHMENT	☐
53	A WOMAN'S CHANCES OF SURVIVING BREAST CANCER IS VERY LOW EVEN IF IT IS FOUND EARLY	☐
54	SHAKING HANDS, TOUCHING, OR KISSING SOME ONE WITH BREAST CANCER MAKES PEOPLE UNCONFORTABLE	☐
55	BREAST CANCER CAN BE PREVENTED BY BREASFEEDING	☐

56	CHANGES FOUND IN THE BREAST DURING BREAST SELF EXAMINATION ARE USUALLY CANCER	☐
57	GETTING BREAST CANCER IS DEATH SENTENCE FOR PEOPLE	☐

THANK YOU

APPENDIX II: INFORMED CONSENT FORM

STUDY TITLE: BREAST CANCER: KNOWLEDGE, ATTITUDES AND PERCEPTIONS AMONG FEMALE SOLDIERS OF THE GHANA ARMED FORCES

Hello, my name is …… and I am conducting this interview on behalf of Foster Kwesi Kwawu, an MPH student of the School of Public Health, University of Ghana.

This study aims to find out what female soldiers know and think about breast cancer and how it can be detected. You are being invited to participate in the study because you are one of 300 female soldiers of the Ghana Armed Forces who have been randomly selected for participation.

If you agree to participate in this study, I will ask you a few questions about yourself, what you know about breast cancer and how it can be detected. This will take about 30minutes of your time and your participation in the study ends after this interview.

Participating in this in this study is entirely voluntary. You have the right to refuse to participate and this will not affect your rights in anyway. You are also at liberty to withdraw from this study at any stage during the interview. I would however encourage you to participate fully.

There are no direct benefits or risks in participating. You will not be paid or compensated for your participation. However, the information that we obtain will help us organize effective educational campaign against the disease. The questions are not very sensitive. However, you may feel uncomfortable answering some of them and you can choose not to answer them. We would encourage you to answer all questions.

All the information collected from you will be treated in strict confidence and will be used for the intended purpose only. You will not be identified by name in any dissemination reports or publications resulting from this study.

The Ghana Health Service Ethics Review Committee has reviewed and given approval for this study to be conducted. The Ghana Armed Forces are aware of this study and have granted the permission for this study to be carried out.

Do you have any questions for me?

If you have any further questions regarding this study you may contact Dr Foster Kwawu on telephone number 0244699766.

I have been adequately informed about the purpose, procedures, potential risks and benefits of this study. I have had the opportunity to ask questions and any questions that I have asked have been answered to my satisfaction. I know that I can refuse to participate in this study without any loss of benefit to which I would have otherwise been entitled. I understand that if I agree to participate I can withdraw my consent at any time without losing any benefits or services to which I am entitled. I understand that any information collected will be treated confidentially. I freely agree to participate in this study.

Name of participant: ……..

Signature: ……..

Date: ……

I have adequately informed the participant of the purpose, procedures, potential risks and benefits of this study. I have answered all questions to the best of my ability.

Name of interviewer: …….

Signature: ……

Date: …….