Employed High Schools Women’s knowledge regarding Breast Cancer in Shandi, River Nile State, Sudan (2016)

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December 2016
regarding Employed High Schools Women’s knowledge
Breast Cancer in Shandi, River Nile State, Sudan (2016)

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Date of Examination 3/12/2016
Dedication

To my beloved mother, my father, my spirit, my lovely wife, my son, my brother, my sister, my friends, who gave all their best and supported.
Acknowledgement

Praise be to Allah, who enlightened us to the path of science and knowledge and helped us to accomplish this work, and space out the supervising Dr. Bothyna Bassyone ElssyedMain supervisor, Dr. Sonia Abd-Elgader Ahmed Co-supervisor. Our sincere thanks and gratitude to all who has helped us, from near or from far away on the completion of this work and in overcoming the difficulties I faced, which he gave us his advice and directives value that was help me in the completion of this research.
Employed High Schools Women’s knowledge regarding Breast Cancer in Shandi, River Nile State, Sudan (2016)

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Abstract

Breast cancer is cancer that develops from breast tissue. Breast cancer is the leading type of cancer in women accounting for 25% of all cases. In 2012 it resulted in 1.68 million cases and 522,000 deaths. A descriptive community based study was conducted in high schools Employed Women, Shandi City. Aimed at assessing the employed Women’ knowledge regarding breast cancer In High School In Shandi City. In River Nile State, Sudan (2016). The study sample consisted of all (100) employed women from all high schools girls in Shandi City during the period from (September to October 2016). Data collected questionnaires were designed to study data was analyzed using statistical software packages Social Sciences (SPSS), the results showed that (92%) of the study sample responded with correct answers regarding definition of breast cancer, and (24%) of them responded correctly regarding cases of breast cancer, and (30%) of the study sample responded with corrected answer regarding factor affecting of the breast cancer, only (8%) of the study sample recognized that changing shape of the breast can be detected though breast self-examination, and only (32%) of the study sample responded with correct answers regarding woman and risk factors for develop breast cancer. The study concluded that employed Women' knowledge regarding breast cancer in secondary schools were inadequate. The study recommended that periodic health education for breast cancer, must be done and hand book must be designed and available for employed women in their work.
ملخص الدراسة

سرطان الثدي هو نوع من السرطان يصيب النساء الثدي وهو يصيب السيدات بنسبة 25% من جميع أنواع السرطانات الأخرى. في عام 2012، اكتشفت 68 مليون حالة ميتة منها حوالي 522000 حالة أجريت هذه الدراسة الوصفية المجتمعية بالمدارس الثانوية بمدينة شندي وشهدت إلى معرفة السيدات المدارس الثانوية فيما يتعلق بسرطان الثدي بمدينة شندي في ولاية نهر النيل، السودان (2016). تكونت عينية الدراسة من كل (100) السيدة المعلمة بكل المدارس الثانوية بمدينة شندي للبنات أثناء فترة الدراسة من شهر سبتمبر إلى شهر أكتوبر 2016. تم جمع البيانات باستخدام استمارة استبيان تم تصميمها للدراسة وتم تحليل البيانات باستخدام برنامج الحزمة الإحصائية للعلوم الاجتماعية (SPSS). أظهرت النتائج أن (92%) من إفراد العينة كانت إجاباتهم صحيحة عن تعريف سرطان الثدي (24%) منهم كانت إجاباتهم صحيحة عن أسباب سرطان الثدي و (30%) من أفراد العينة كانت إجاباتهم صحيحة عن العوامل المؤثرة على الإصابة بسرطان الثدي، فقط (8%) منهم كانت إجاباتهم صحيحة عن التغيير في شكل الثدي الذي يمكن اكتشافه بالفحص الذاتي للثدي، و (30%) من أفراد العينة كانت إجاباتهم صحيحة عن السيدات الأكثر عرضة بالإصابة بسرطان الثدي. وخلصت الدراسة أليان معلومات السيدات المدارس الثانوية بأجهزة شندي عن سرطان الثدي كانت غير كافية. وأوصت الدراسة بعمل تدريب صحي للسيدات عن سرطان الثدي وتصميم كتب تدريسية ودورية وتكون متاحة لهم في أماكن عملهم.
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<td>Breast Cancer</td>
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<td>MRI</td>
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<td>CBC</td>
<td>Complete Blood Count</td>
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<td>Etc</td>
<td>Extra</td>
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<td>SPSS</td>
<td>Statistical Package for Social Sciences</td>
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CHAPTER ONE
Introduction
1-Introduction

1-1 Background

Breast cancer is a malignant tumor that starts in the cells of the breast. A malignant tumor is a group of cancer cells that can grow into (invade) surrounding tissues or spread (metastasize) to distant areas of the body. The disease occurs almost entirely in women, but men can get it too (American cancer society, 2014). Signs of breast cancer may include a lump in the breast, a change in breast shape, dimpling of the skin, fluid coming from the nipple, or a red scaly patch of skin. In those with distant spread of the disease, there may be bone pain, swollen lymph nodes, shortness of breath, or yellow skin. The balance of benefits versus harms of breast cancer screening is controversial. A 2013 Cochrane review stated that it is unclear if mammographic screening does more good or harm. A 2009 review for the US Preventive Services Task Force found evidence of benefit in those 40 to 70 years of age, and the organization recommends screening every two years in women 50 to 74 years old. The medications tamoxifen or raloxifene may be used in an effort to prevent breast cancer in those who are at high risk of developing it. Surgical removal of both breasts is another preventative measure in some high risk women. In those who have been diagnosed with cancer, a number of treatments may be used, including surgery, radiation therapy, chemotherapy, hormonal therapy and targeted therapy. Types of surgery vary from breast-conserving surgery to mastectomy. Breast reconstruction may take place at the time of surgery or at a later date. In those in whom the cancer has spread to other parts of the body, treatments are mostly aimed at improving quality of life and comfort. (American cancer society, 2014).

Outcomes for breast cancer vary depending on the cancer type, extent of disease, and person's age. Survival rates in the developed world are high with between 80% and 90% of those in England and the United States alive for at least 5 years. In developing countries survival rates are poorer. Worldwide, breast cancer is the leading type of cancer in women, accounting for 25% of all cases. In 2012 it resulted in 1.68 million cases and 522,000 deaths. It is more.” (Breast Cancer”. NCI. Retrieved 29 June 2014).

Awareness of women about breast cancer is essential for early detection and early treatment.
1-2 Problem statement

Worldwide: Cancer in all forms are responsible for about 12 per cent of deaths throughout the world (Park, 2002). Globally, breast cancer is the most common malignant neoplasm among women (Leszczynska et al., 2004; WHO, 2006). Breast cancer causes 376,000 deaths a year worldwide; about 900,000 women are diagnosed every year with the disease (WHO, 2009).

Developed countries: Although the incidence of breast cancer in developing countries is relatively low (Kept et al., 2003), about 50% of all cases of breast cancer are diagnosed in these countries (Hajji et al., 2002; Sadler et al., 2001). Based on a study during 1975-1990, Asia and Africa have experienced a more rapid rise in the annual incidence rate of breast cancer than that of North America and Europe (Shirazi et al., 2006).

In Sudan: it is the second leading cause of death in women worldwide as well as in Sudan. It is estimated that more than 1.6 million new cases of breast cancer occurred among women worldwide in 2010. (Khartoum breast cancer center).

1-3 Justification

Breast cancer is the most common cancer among women, with approximately 182,000 women diagnosed with breast cancer annually in the United States, accounting for approximately 26% of all incident cancers among women. Each year, 40,000 women die of breast cancer, making it the second-leading cause of cancer deaths among American women after lung cancer. (American cancer society, 2014).

The lifetime risk of dying of breast cancer is approximately 3.4%. Nurses play accurate role in early treatment resulting in control of breast cancer and prevent complication so correct investigate and the role of teacher and all the women in the field of education to make the effort to deliver the message and define and educate all women and teachers and students of the seriousness of breast cancer and teach them about breast self-examination for prevention and early detection of breast cancer.
1-4 Objectives

1-4-1 General
To assess employed Women' knowledge regarding breast cancer in high school in ShandiCity River Nile State Sudan (2016)

1-4-2 Specific objectives
1. To assess the employed Women' knowledge regarding breast cancer for definition, causes, sign and symptom, factors, risk factors and..........................etc
2. To educate them for the preventions and early detection.
CHAPTER TWO

Literature Review
2- Literature Review

2.1. Introduction

Breast cancer is a malignant tumor that starts in the cells of the breast. A malignant tumor is a group of cancer cells that can grow into (invade) surrounding tissues or spread (metastasize) to distant areas of the body. The disease occurs almost entirely in women, but men can get it too (American cancer society, 2014).

Signs of breast cancer may include a lump in the breast, a change in breast shape, dimpling of the skin, fluid coming from the nipple, or a red scaly patch of skin. In those with distant spread of the disease, there may be bone pain, swollen lymph nodes, shortness of breath, or yellow skin (Sunil 2009).

Risk factors for developing breast cancer include female sex, obesity, lack of physical exercise, drinking alcohol, hormone replacement therapy during menopause, ionizing radiation, early age at first menstruation, having children late or not at all, older age, and family history. About 5–10% of cases are due to genes inherited from a person's parents, including BRCA1 and BRCA2 among others. Breast cancer most commonly develops in cells from the lining of milk ducts and the lobules that supply the ducts with milk. Cancers developing from the ducts are known as ductal carcinomas, while those developing from lobules are known as lobular carcinomas. In addition, there are more than 18 other sub-types of breast cancer. Some cancers, such as ductal carcinoma in situ, develop from pre-invasive lesions. The diagnosis of breast cancer is confirmed by taking a biopsy of the concerning lump. Once the diagnosis is made, further tests are done to determine if the cancer has spread beyond the breast and which treatments it may respond to (Sunil 2009).

The balance of benefits versus harms of breast cancer screening is controversial. A 2013 Cochrane review stated that it is unclear if mammographic screening does more good or harm. A 2009 review for the US Preventive Services Task Force found evidence of benefit in those 40 to 70 years of age, and the organization recommends screening every two years in women 50 to 74 years old. The medications tamoxifen or raloxifene may be used in an effort to prevent breast cancer in those who are at high risk of developing it. Surgical removal of both breasts is another preventative measure in some high risk women. In those who have been diagnosed with cancer, a number of treatments may be used, including surgery, radiation therapy, chemotherapy, hormonal therapy and targeted therapy. Types of surgery vary from breast-conserving
surgery to mastectomy. Breast reconstruction may take place at the time of surgery or at a later date. In those in whom the cancer has spread to other parts of the body, treatments are mostly aimed at improving quality of life and comfort. (Sunil 2009).

Outcomes for breast cancer vary depending on the cancer type, extent of disease, and person's age. Survival rates in the developed world are high with between 80% and 90% of those in England and the United States alive for at least 5 years. In developing countries, survival rates are poorer. Worldwide, breast cancer is the leading type of cancer in women, accounting for 25% of all cases. In 2012, it resulted in 1.68 million cases and 522,000 deaths. It is more common in developed countries and is more than 100 times more common in women than in men. (Sunil 2009).

2-2 Signs and symptoms.

The first noticeable symptom of breast cancer is typically a lump that feels different from the rest of the breast tissue. More than 80% of breast cancer cases are discovered when the woman feels a lump. The earliest breast cancers are detected by a mammogram. Lumps found in lymph nodes located in the armpits can also indicate breast cancer. (World Cancer Report 2014).

Indications of breast cancer other than a lump may include thickening different from the other breast tissue, one breast becoming larger or lower, a nipple changing position or shape or becoming inverted, skin puckering or dimpling, a rash on or around a nipple, discharge from nipple/s, constant pain in part of the breast or armpit, and swelling beneath the armpit or around the collarbone. Pain ("mastodynia") is an unreliable tool in determining the presence or absence of breast cancer, but may be indicative of other breast health issues. (World Cancer Report 2014).

Inflammatory breast cancer is a particular type of breast cancer which can pose a substantial diagnostic challenge. Symptoms may resemble a breast inflammation and may include itching, pain, swelling, nipple inversion, warmth and redness throughout the breast, as well as an orange-peel texture to the skin referred to as peau d'orange.

As inflammatory breast cancer does not present as a lump there can sometimes be a delay in diagnosis. (World Cancer Report 2014).

Another reported symptom complex of breast cancer is Paget's disease of the breast. This syndrome presents as skin changes resembling eczema, such as redness, discoloration, or mild flaking of the nipple skin. As Paget's disease of the breast advances, symptoms may include tingling, itching, increased sensitivity, burning, and
pain. There may also be discharge from the nipple. Approximately half of women diagnosed with Paget's disease of the breast also have a lump in the breast. (World Cancer Report 2014).

In rare cases, what initially appears as a fibroadenoma (hard, movable non-cancerous lump) could in fact be a phyllodes tumor. Phyllodes tumors are formed within the stroma (connective tissue) of the breast and contain glandular as well as stromal tissue. Phyllodes tumors are not staged in the usual sense; they are classified on the basis of their appearance under the microscope as benign, borderline, or malignant. Occasionally, breast cancer presents as metastatic disease—that is, cancer that has spread beyond the original organ. The symptoms caused by metastatic breast cancer will depend on the location of metastasis. Common sites of metastasis include bone, liver, lung and brain. Unexplained weight loss can occasionally signal breast cancer, as can symptoms of fevers or chills. Bone or joint pains can sometimes be manifestations of metastatic breast cancer, as can jaundice or neurological symptoms. These symptoms are called non-specific, meaning they could be manifestations of many other illnesses. (World Cancer Report 2014).

Most symptoms of breast disorders, including most lumps, do not turn out to represent underlying breast cancer. Fewer than 20% of lumps, for example, are cancerous, and benign breast diseases such as mastitis and fibroadenoma of the breast are more common causes of breast disorder symptoms. Nevertheless, the appearance of a new symptom should be taken seriously by both patients and their doctors, because of the possibility of an underlying breast cancer at almost any age. (World Cancer Report 2014)

**2-3 Risk factor**

*Main article: Risk factors of breast cancer*

Risk factors can be divided into two categories:

- *modifiable* risk factors (things that people can change themselves, such as consumption of alcoholic beverages), and
- *fixed* risk factors (things that cannot be changed, such as age and biological sex). (Frampton, Chris 15 November 2013).

The primary risk factors for breast cancer are female sex and older age. Other potential risk factors include genetics lack of childbearing or lack of breastfeeding,
higher levels of certain hormones, certain dietary patterns, and obesity. Recent studies have indicated that exposure to light pollution is a risk factor for the development of breast cancer. (Frampton, Chris 15 November 2013).

2-3-1 Lifestyle

See also: List of breast carcinogenic substances

Smoking tobacco appears to increase the risk of breast cancer, with the greater the amount smoked and the earlier in life that smoking began, the higher the risk. In those who are long-term smokers, the risk is increased 35% to 50%. A lack of physical activity has been linked to about 10% of cases. Sitting regularly for prolonged periods is associated with higher mortality from breast cancer. The risk is not negated by regular exercise, though it is lowered. (Frampton, Chris 15 November 2013).

There is an association between use of hormonal birth control and the development of premenopausal breast cancer, but whether oral contraceptives use may actually cause premenopausal breast cancer is a matter of debate. If there is indeed a link, the absolute effect is small. Additionally, it is not clear if the association exists with newer hormonal birth controls in those with mutations in the breast cancer susceptibility genes BRCA1 or BRCA2, or who have a family history of breast cancer, use of modern oral contraceptives does not appear to affect the risk of breast cancer.

The association between breast feeding and breast cancer has not been clearly determined; some studies have found support for an association while others have not. In the 1980s, the abortion–breast cancer hypothesis posited that induced abortion increased the risk of developing breast cancer. This hypothesis was the subject of extensive scientific inquiry, which concluded that neither miscarriages nor abortions are associated with a heightened risk for breast cancer. (Frampton, Chris 15 November 2013).

A number of dietary factors have been linked to the risk for breast cancer. Dietary factors which may increase risk include a high fat diet high alcohol intake and obesity-related high cholesterol levels. Dietary iodine deficiency may also play a role. Evidence for fiber is unclear. A 2015 review found that studies trying to link fiber intake with breast cancer produced mixed results. In 2016 a tentative association between low fiber intake during adolescence and breast cancer was observed.

Other risk factors include radiation, and shift-work. A number of chemicals have also been linked, including polychlorinated biphenyls, polycyclic aromatic hydrocarbons,
organic solvents. Although the radiation from mammography is a low dose, it is estimated that yearly screening from 40 to 80 years of age will cause approximately 225 cases of fatal breast cancer per million women screened. (Frampton, Chris 15 November 2013).

2-3-2 Genetics

Some genetic susceptibility may play a minor role in most cases. Overall, however, genetics is believed to be the primary cause of 5–10% of all cases. Women whose mother was diagnosed before 50 have an increased risk of 1.7 and those whose mother was diagnosed at age 50 or after has an increased risk of 1.4. In those with zero, one or two affected relatives, the risk of breast cancer before the age of 80 is 7.8%, 13.3%, and 21.1% with a subsequent mortality from the disease of 2.3%, 4.2%, and 7.6% respectively. (Frampton, Chris 15 November 2013).

In those with a first degree relative with the disease, the risk of breast cancer between the age of 40 and 50 is double that of the general population. (Frampton, Chris 15 November 2013).

In less than 5% of cases, genetics plays a more significant role by causing a hereditary breast–ovarian cancer syndrome. This includes those who carry the BRCA1 and BRCA2 gene mutation. These mutations account for up to 90% of the total genetic influence with a risk of breast cancer of 60–80% in those affected. Other significant mutations include p53 (Li–Fraumeni syndrome), PTEN (Cowden syndrome), and STK11 (Peutz–Jeghers syndrome), CHEK2, ATM, BRIP1, and PALB2. In 2012, researchers said that there are four genetically distinct types of the breast cancer and that in each type, hallmark genetic changes lead to many cancers. (Frampton, Chris 15 November 2013).

2-3-3 Medical conditions

Breast changes like atypical ductal hyperplasia and lobular carcinoma in situ, found in benign breast conditions such as fibrocystic breast changes, are correlated with an increased breast cancer risk. Diabetes mellitus might also increase the risk of breast cancer. (Frampton, Chris 15 November 2013).
2-4 Path physiology

Overview of signal transduction pathways involved in programmed cell death. Mutations leading to loss of this ability can lead to cancer formation. (American Cancer Society 2007)

Breast cancer, like other cancers, occurs because of an interaction between an environmental (external) factor and a genetically susceptible host. Normal cells divide as many times as needed and stop. They attach to other cells and stay in place in tissues. Cells become cancerous when they lose their ability to stop dividing, to attach to other cells, to stay where they belong, and to die at the proper time. (American Cancer Society 2007)

Normal cells will commit cell suicide (programmed cell death) when they are no longer needed. Until then, they are protected from cell suicide by several protein clusters and pathways. One of the protective pathways is the PI3K/AKT pathway; another is the RAS/MEK/ERK pathway. Sometimes the genes along these protective pathways are mutated in a way that turns them permanently "on", rendering the cell incapable of committing suicide when it is no longer needed. This is one of the steps that causes cancer in combination with other mutations. Normally, the PTEN protein turns off the PI3K/AKT pathway when the cell is ready for programmed cell death. In some breast cancers, the gene for the PTEN protein is mutated, so the PI3K/AKT pathway is stuck in the "on" position, and the cancer cell does not commit suicide.

Mutations that can lead to breast cancer have been experimentally linked to estrogen exposure. (American Cancer Society 2007)

Abnormal growth factor signaling in the interaction between stromal cells and epithelial cells can facilitate malignant cell growth. In breast adipose tissue, overexpression of leptin leads to increased cell proliferation and cancer. (American Cancer Society 2007)

In the United States, 10 to 20 percent of people with breast cancer and people with ovarian cancer have a first- or second-degree relative with one of these diseases. The familial tendency to develop these cancers is called hereditary breast–ovarian cancer syndrome. The best known of these, the BRCA mutations, confer a lifetime risk of breast cancer of between 60 and 85 percent and a lifetime risk of ovarian cancer of between 15 and 40 percent. Some mutations associated with cancer, such as p53, BRCA1 and BRCA2, occur in mechanisms to correct errors in DNA. These mutations
are either inherited or acquired after birth. Presumably, they allow further mutations, which allow uncontrolled division, lack of attachment, and metastasis to distant organs. However, there is strong evidence of residual risk variation that goes well beyond hereditary BRCA gene mutations between carrier families. This is caused by unobserved risk factors. This implicates environmental and other causes as triggers for breast cancers. The inherited mutation in BRCA1 or BRCA2 genes can interfere with repair of DNA cross links and DNA double strand breaks (known functions of the encoded protein) These carcinogens cause DNA damage such as DNA cross links and double strand breaks that often require repairs by pathways containing BRCA1 and BRCA2. However, mutations in BRCA genes account for only 2 to 3 percent of all breast cancers. Levin et al. say that cancer may not be inevitable for all carriers of BRCA1 and BRCA2 mutations. About half of hereditary breast–ovarian cancer syndromes involve unknown genes. (American Cancer Society 2007)

GATA-3 directly controls the expression of estrogen receptor (ER) and other genes associated with epithelial differentiation, and the loss of GATA-3 leads to loss of differentiation and poor prognosis due to cancer cell invasion and metastasis. (American Cancer Society 2007)

2-5 Diagnosis

Most types of breast cancer are easy to diagnose by microscopic analysis of a sample—or biopsy—of the affected area of the breast. Also, there are types of breast cancer that require specialized lab exams. (Watson M 2008).

The two most commonly used screening methods, physical examination of the breasts by a healthcare provider and mammography, can offer an approximate likelihood that a lump is cancer, and may also detect some other lesions, such as a simple cyst. When these examinations are inconclusive, a healthcare provider can remove a sample of the fluid in the lump for microscopic analysis (a procedure known as fine needle aspiration, or fine needle aspiration and cytology—FNAC) to help establish the diagnosis. The needle aspiration may be performed in a healthcare provider's office or clinic using local anaesthetic if required. A finding of clear fluid makes the lump highly unlikely to be cancerous, but bloody fluid may be sent off for inspection under a microscope for cancerous cells. Together, physical examination of the breasts, mammography, and FNAC can be used to diagnose breast cancer with a good degree of accuracy. (Watson M 2008).
Other options for biopsy include a core biopsy or vacuum-assisted breast biopsy, which are procedures in which a section of the breast lump is removed; or an excisional biopsy, in which the entire lump is removed. Very often the results of physical examination by a healthcare provider, mammography, and additional tests that may be performed in special circumstances (such as imaging by ultrasound or MRI) are sufficient to warrant excisional biopsy as the definitive diagnostic and primary treatment method. (Watson M 2008).

**2-5-1 Classification**

Breast cancers are classified by several grading systems. Each of these influences the prognosis and can affect treatment response. Description of a breast cancer optimally includes all of these factors. (Watson M 2008).

- **Histopathology.** Breast cancer is usually classified primarily by its histological appearance. Most breast cancers are derived from the epithelium lining the ducts or lobules, and these cancers are classified as ductal or lobular carcinoma. Carcinoma in situ is growth of low grade cancerous or precancerous cells within a particular tissue compartment such as the mammary duct without invasion of the surrounding tissue. In contrast, invasive carcinoma does not confine itself to the initial tissue compartment. (Watson M 2008).

- **Grade.** Grading compares the appearance of the breast cancer cells to the appearance of normal breast tissue. Normal cells in an organ like the breast become differentiated, meaning that they take on specific shapes and forms that reflect their function as part of that organ. Cancerous cells lose that differentiation. In cancer, the cells that would normally line up in an orderly way to make up the milk ducts become disorganized. Cell division becomes uncontrolled. Cell nuclei become less uniform. Pathologists describe cells as well differentiated (low grade), moderately differentiated (intermediate grade), and poorly differentiated (high grade) as the cells progressively lose the features seen in normal breast cells. Poorly differentiated cancers (the ones whose tissue is least like normal breast tissue) have a worse prognosis. (Watson M 2008).

- **Stage.** Breast cancer staging using the TNM system is based on the size of the tumor (T), whether or not the tumor has spread to the lymph nodes (N) in the armpits, and whether the tumor has metastasized (M) (i.e. spread to a more distant part of the
body). Larger size, nodal spread, and metastasis have a larger stage number and a worse prognosis. (Watson M 2008).

The main stages are:

- Stage 0 is a pre-cancerous or marker condition, either ductal carcinoma in situ (DCIS) or lobular carcinoma in situ (LCIS).
- Stages 1–3 are within the breast or regional lymph nodes.
- Stage 4 is 'metastatic' cancer that has a less favorable prognosis since it has spread beyond the breast and regional lymph nodes.

Where available, imaging studies may be employed as part of the staging process in select cases to look for signs of metastatic cancer. However, in cases of breast cancer with low risk for metastasis, the risks associated with PET scans, CT scans, or bone scans outweigh the possible benefits, as these procedures expose the patient to a substantial amount of potentially dangerous ionizing radiation. (Watson M 2008).

- **Receptor status.** Breast cancer cells have receptors on their surface and in their cytoplasm and nucleus. Chemical messengers such as hormones bind to receptors, and this causes changes in the cell. Breast cancer cells may or may not have three important receptors: estrogen receptor (ER), progesterone receptor (PR), and HER2. ER+ cancer cells (that is, cancer cells that have estrogen receptors) depend on estrogen for their growth, so they can be treated with drugs to block estrogen effects (e.g. tamoxifen), and generally have a better prognosis. Untreated, HER2+ breast cancers are generally more aggressive than HER2- breast cancers, but HER2+ cancer cells respond to drugs such as the monoclonal antibody trastuzumab (in combination with conventional chemotherapy), and this has improved the prognosis significantly. Cells that do not have any of these three receptor types (estrogen receptors, progesterone receptors, or HER2) are called triple-negative, although they frequently do express receptors for other hormones, such as androgen receptor and prolactin receptor. (Watson M 2008).

- **DNA assays.** DNA testing of various types including DNA microarrays have compared normal cells to breast cancer cells. The specific changes in a particular breast cancer can be used to classify the cancer in several ways, and may assist in choosing the most effective treatment for that DNA type. (Watson M 2008).
2-6 Prevention

2-6-1 Life-style

Women may reduce their risk of breast cancer by maintaining a healthy weight, drinking less alcohol, being physically active and breastfeeding their children. These modifications might prevent 38% of breast cancers in the US, 42% in the UK, 28% in Brazil and 20% in China. The benefits with moderate exercise such as brisk walking are seen at all age groups including postmenopausal women. High levels of physical activity reduce the risk of breast cancer by about 14%. Strategies that encourage regular physical activity and reduce obesity could also have other benefits, such as reduced risks of cardiovascular disease and diabetes. (Lacroix M December 2006).

Marine omega-3 polyunsaturated fatty acids appear to reduce the risk. High consumption of soy-based foods may reduce risk. (Lacroix M December 2006).

2-6-2 Pre-emptive surgery

Removal of both breasts before any cancer has been diagnosed or any suspicious lump or other lesion has appeared (a procedure known as prophylactic bilateral mastectomy) may be considered in people with BRCA1 and BRCA2 mutations, which are associated with a substantially heightened risk for an eventual diagnosis of breast cancer. Evidence is not strong enough to support this procedure in anyone but those at the highest risk. BRCA testing is recommended in those with a high family risk after genetic counseling. It is not recommended routinely. This is because there are many forms of changes in BRCA genes, ranging from harmless polymorphisms to obviously dangerous frameshift mutations. The effect of most of identifiable changes in the genes is uncertain. Testing in an average-risk person is particularly likely to return one of these indeterminate, useless results. It is unclear if removing the second breast in those who have breast cancer in one is beneficial. (Lacroix M December 2006).

2-6-3 Medications

The selective estrogen receptor modulators (such as tamoxifen) reduce the risk of breast cancer but increase the risk of thromboembolism and endometrial cancer. There is no overall change in the risk of death. They are thus not recommended for the prevention of breast cancer in women at average risk but may be offered for those at high risk. The benefit of breast cancer reduction continues for at least five years after stopping a course of treatment with these medications. (Lacroix M December 2006)
Breast cancer screening refers to testing otherwise-healthy women for breast cancer in an attempt to achieve an earlier diagnosis under the assumption that early detection will improve outcomes. A number of screening tests have been employed including: clinical and self breast exams, mammography, genetic screening, ultrasound, and magnetic resonance imaging. (Vogel VG 2008).

A clinical or self breast exam involves feeling the breast for lumps or other abnormalities. Clinical breast exams are performed by health care providers, while self breast exams are performed by the person themselves. Evidence does not support the effectiveness of either type of breast exam, as by the time a lump is large enough to be found it is likely to have been growing for several years and thus soon be large enough to be found without an exam. Mammographic screening for breast cancer uses X-rays to examine the breast for any uncharacteristic masses or lumps. During a screening, the breast is compressed and a technician takes photos from multiple angles. A general mammogram takes photos of the entire breast, while a diagnostic mammogram focuses on a specific lump or area of concern. (Vogel VG 2008).

A number of national bodies recommend breast cancer screening. For the average woman, the U.S. Preventive Services Task Force recommends mammography every two years in women between the ages of 50 and 74, the Council of Europe recommends mammography between 50 and 69 with most programs using a 2-year frequency, and in Canada screening is recommended between the ages of 50 and 74 at a frequency of 2 to 3 years. These task force reports point out that in addition to unnecessary surgery and anxiety, the risks of more frequent mammograms include a small but significant increase in breast cancer induced by radiation. (Vogel VG 2008).

The Cochrane collaboration (2013) states that the best quality evidence neither demonstrates a reduction in cancer specific, nor a reduction in all cause mortality from screening mammography. When less rigorous trials are added to the analysis there is a reduction in mortality due to breast cancer of 0.05% (a decrease of 1 in 2000 deaths from breast cancer over 10 years or a relative decrease of 15% from breast cancer). Screening over 10 years results in a 30% increase in rates of over-diagnosis and over-treatment (3 to 14 per 1000) and more than half will have at least one falsely positive test. This has resulted in the view that it is not clear whether mammography screening does more good or harm. Cochrane states that, due to recent improvements
in breast cancer treatment, and the risks of false positives from breast cancer screening leading to unnecessary treatment, "it therefore no longer seems beneficial to attend for breast cancer screening" at any age. Whether MRI as a screening method has greater harms or benefits when compared to standard mammography is not known.(Vogel VG 2008).

2-8 Management

Main article: Breast cancer management

The management of breast cancer depends on various factors, including the stage of the cancer and the age of the patient. Increasingly aggressive treatments are employed in accordance with the poorer the patient's prognosis and the higher the risk of recurrence of the cancer following treatment.(Davidson NE 2006).

Breast cancer is usually treated with surgery, which may be followed by chemotherapy or radiation therapy, or both. A multidisciplinary approach is preferable. Hormone receptor-positive cancers are often treated with hormone-blocking therapy over courses of several years. Monoclonal antibodies, or other immune-modulating treatments, may be administered in certain cases of metastatic and other advanced stages of breast cancer.(Davidson NE 2006).

2-8-1 Surgery

Surgery involves the physical removal of the tumor, typically along with some of the surrounding tissue. One or more lymph nodes may be biopsied during the surgery; increasingly the lymph node sampling is performed by a sentinel lymph node biopsy. Standard surgeries include

Mastectomy: Removal of the whole breast.

- Quadrantectomy: Removal of one quarter of the breast.
- Lumpectomy: Removal of a small part of the breast.

Once the tumor has been removed, if the patient desires, breast reconstruction surgery, a type of plastic surgery, may then be performed to improve the aesthetic appearance of the treated site. Alternatively, women use breast prostheses to simulate a breast under clothing, or choose a flat chest. Nipple prosthesis can be used at any time following the mastectomy.(Davidson NE 2006).
2-8-2 Medication

Drugs used after and in addition to surgery are called adjuvant therapy. Chemotherapy or other types of therapy prior to surgery are called neoadjuvant therapy. Aspirin may reduce mortality from breast cancer. (Davidson NE 2006).

There are currently three main groups of medications used for adjuvant breast cancer treatment: hormone-blocking agents, chemotherapy, and monoclonal antibodies. (Davidson NE 2006).

Hormone blocking therapy

Some breast cancers require estrogen to continue growing. They can be identified by the presence of estrogen receptors (ER+) and progesterone receptors (PR+) on their surface (sometimes referred to together as hormone receptors). These ER+ cancers can be treated with drugs that either block the receptors, e.g. tamoxifen, or alternatively block the production of estrogen with an aromatase inhibitor, e.g. anastrozole or letrozole. The use of tamoxifen is recommended for 10 years. Letrozole is recommended for 5 years. Aromatase inhibitors are only suitable for women after menopause; however, in this group, they appear better than tamoxifen. This is because the active aromatase in postmenopausal women is different from the prevalent form in premenopausal women, and therefore these agents are ineffective in inhibiting the predominant aromatase of premenopausal women. Aromatase inhibitors should not be given to premenopausal women with intact ovarian function (unless they are also on treatment to stop their ovaries from working). (Davidson NE 2006).

Chemotherapy

Chemotherapy is predominantly used for cases of breast cancer in stages 2–4, and is particularly beneficial in estrogen receptor-negative (ER-) disease. The chemotherapy medications are administered in combinations, usually for periods of 3–6 months. One of the most common regimens, known as "AC", combines cyclophosphamide with doxorubicin. Sometimes a taxane drug, such as docetaxel, is added, and the regime is then known as "CAT". Another common treatment is cyclophosphamide, methotrexate, and fluorouracil (or "CMF"). Most chemotherapy medications work by destroying fast-growing and/or fast-replicating cancer cells, either by causing DNA damage upon replication or by other mechanisms. However, the medications also damage fast-growing normal cells, which may cause serious side effects. Damage to the heart muscle is the most dangerous complication of doxorubicin, for
Monoclonal antibodies

Trastuzumab, a monoclonal antibody to HER2 (a cell receptor that is especially active in some breast cancer cells), has improved the 5-year disease free survival of stage 1–3 HER2-positive breast cancers to about 87% (overall survival 95%) When stimulated by certain growth factors, HER2 causes cellular growth and division; in the absence of stimulation by the growth factor, the cell will normally stop growing. Between 25% and 30% of breast cancers overexpress the HER2 gene or its protein product, and overexpression of HER2 in breast cancer is associated with increased disease recurrence and worse prognosis. When trastuzumab binds to the HER2 in breast cancer cells that overexpress the receptor, trastuzumab prevents growth factors from being able to bind to and stimulate the receptors, effectively blocking the growth of the cancer cells. Trastuzumab, however, is very expensive, and its use may cause serious side effects (approximately 2% of patients who receive it suffer significant heart damage). Further, trastuzumab is only effective in patients with HER2 amplification/overexpression. (Davidson NE 2006).

2-8-3 Radiation

Radiotherapy is given after surgery to the region of the tumor bed and regional lymph nodes, to destroy microscopic tumor cells that may have escaped surgery. It may also have a beneficial effect on tumor microenvironment. Radiation therapy can be delivered as external beam radiotherapy or as brachytherapy (internal radiotherapy). Conventionally radiotherapy is given after the operation for breast cancer. Radiation can also be given at the time of operation on the breast cancer- intraoperatively. The largest randomised trial to test this approach was the TARGIT-A Trial which found that targeted intraoperative radiotherapy was equally effective at 4-years as the usual several weeks' of whole breast external beam radiotherapy. Radiation can reduce the risk of recurrence by 50–66% (1/2 – 2/3 reduction of risk) when delivered in the correct dose and is considered essential when breast cancer is treated by removing only the lump (Lumpectomy or Wide local excision). (Davidson NE 2006).
2-9 Prognosis

Prognosis is usually given for the probability of progression-free survival (PFS) or disease-free survival (DFS). These predictions are based on experience with breast cancer patients with similar classification. A prognosis is an estimate, as patients with the same classification will survive a different amount of time, and classifications are not always precise. Survival is usually calculated as an average number of months (or years) that 50% of patients survive, or the percentage of patients that are alive after 1, 5, 15, and 20 years. Prognosis is important for treatment decisions because patients with a good prognosis are usually offered less invasive treatments, such as lumpectomy and radiation or hormone therapy, while patients with poor prognosis are usually offered more aggressive treatment, such as more extensive mastectomy and one or more chemotherapy drugs. (Hong Lee J. February 2009).

2-9-1 Prognostic factors

Prognostic factors are reflected in the classification scheme for breast cancer including stage, (i.e., tumor size, location, whether disease has spread to lymph nodes and other parts of the body), grade, recurrence of the disease, and the age and health of the patient. The Nottingham Prognostic Index is a commonly used prognostic tool. The stage of the breast cancer is the most important component of traditional classification methods of breast cancer, because it has a greater effect on the prognosis than the other considerations. Staging takes into consideration size, local involvement, lymph node status and whether metastatic disease is present. The higher the stage at diagnosis, the poorer the prognosis. The stage is raised by the invasiveness of disease to lymph nodes, chest wall, skin or beyond, and the aggressiveness of the cancer cells. The stage is lowered by the presence of cancer-free zones and close-to-normal cell behaviour (grading). Size is not a factor in staging unless the cancer is invasive. For example, Ductal Carcinoma In Situ (DCIS) involving the entire breast will still be stage zero and consequently an excellent prognosis with a 10-year disease free survival of about 98%.

- Stage 1 cancers (and DCIS, LCIS) have an excellent prognosis and are generally treated with lumpectomy and sometimes radiation. HER2+ cancers should be treated with the trastuzumab (Herceptin) regime. Chemotherapy is uncommon for other types of stage 1 cancers.
• Stage 2 and 3 cancers with a progressively poorer prognosis and greater risk of recurrence are generally treated with surgery (lumpectomy or mastectomy with or without lymph node removal), chemotherapy (plus trastuzumab for HER2+ cancers) and sometimes radiation (particularly following large cancers, multiple positive nodes or lumpectomy).

• Stage 4, metastatic cancer, (i.e. spread to distant sites) has poor prognosis and is managed by various combination of all treatments from surgery, radiation, chemotherapy and targeted therapies. Ten-year survival rate is 5% without treatment and 10% with optimal treatment.(Hong Lee J .February 2009).

The breast cancer grade is assessed by comparison of the breast cancer cells to normal breast cells. The closer to normal the cancer cells are, the slower their growth and the better the prognosis. If cells are not well differentiated, they will appear immature, will divide more rapidly, and will tend to spread. Well differentiated is given a grade of 1, moderate is grade 2, while poor or undifferentiated is given a higher grade of 3 or 4 (depending upon the scale used). The most widely used grading system is the Nottingham scheme details are provided in the discussion of breast cancer grade.

The presence of estrogen and progesterone receptors in the cancer cell is important in guiding treatment. Those who do not test positive for these specific receptors will not be able to respond to hormone therapy, and this can affect their chance of survival depending upon what treatment options remain, the exact type of the cancer, and how advanced the disease is.(Hong Lee J .February 2009).

In addition to hormone receptors, there are other cell surface proteins that may affect prognosis and treatment. HER2 status directs the course of treatment. Patients whose cancer cells are positive for HER2 have a more aggressive disease and may be treated with the 'targeted therapy', trastuzumab (Herceptin), a monoclonal antibody that targets this protein and improves the prognosis significantly.(Hong Lee J .February 2009).

Younger women with an age of less than 40 years or women over 80 years tend to have a poorer prognosis than post-menopausal women due to several factors. Their breasts may change with their menstrual cycles, they may be nursing infants, and they may be unaware of changes in their breasts. Therefore, younger women are usually at a more advanced stage when diagnosed. There may also be biologic factors contributing to a higher risk of disease recurrence for younger women with breast cancer.(Hong Lee J .February 2009).
High mammographic breast density, which is a marker of increased risk of developing breast cancer, may not mean an increased risk of death among breast cancer patients, according to a 2012 report of a study involving 9232 women by the National Cancer Institute (NCI) On the other hand, more recent research has shown that women with extremely low mammographic densities (<10%) hold a significantly worse prognosis compared to women with other densities, irrespective of all possible confounding factors.(Hong Lee J. February 2009).

Since breast cancer in males is usually detected at later stages, outcomes are typically worse.(Hong Lee J. February 2009).

2-9-2 Psychological aspects

The emotional impact of cancer diagnosis, symptoms, treatment, and related issues can be severe. Most larger hospitals are associated with cancer support groups which provide a supportive environment to help patients cope and gain perspective from cancer survivors.(Hong Lee J. February 2009).

Not all breast cancer patients experience their illness in the same manner. Factors such as age can have a significant impact on the way a patient copes with a breast cancer diagnosis. Premenopausal women with estrogen-receptor positive breast cancer must confront the issues of early menopause induced by many of the chemotherapy regimens used to treat their breast cancer, especially those that use hormones to counteract ovarian function.(Hong Lee J. February 2009).

On the other hand, a small 2007 study conducted by researchers at the College of Public Health of the University of Georgia suggested a need for greater attention to promoting functioning and psychological well-being among older cancer survivors, even when they may not have obvious cancer-related medical complications. The study found that older breast cancer survivors showed multiple indications of decrements in their health-related quality of life, and lower psychosocial well-being than a comparison group. Survivors reported no more depressive symptoms or anxious mood than the comparison group, however, they did score lower in measures of positive psychosocial well-being, and reported more depressed mood and days affected by fatigue. As the incidence of breast cancer in women over 50 rises and survival rates increase, breast cancer is increasingly becoming a geriatric issue that warrants both further research and the expansion of specialized cancer support services tailored for specific age groups.(Hong Lee J. February 2009).
2-10 Epidemiology

Age-standardized death from breast cancer per 100,000 inhabitants in 2004

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Worldwide, breast cancer is the most common invasive cancer in women. It affects about 12% of women worldwide (The most common form of cancer is non-invasive non-melanoma skin cancer; non-invasive cancers are generally easily cured, cause very few deaths, and are routinely excluded from cancer statistics.) Breast cancer comprises 22.9% of invasive cancers in women and 16% of all female cancers In 2012, it comprised 25.2% of cancers diagnosed in women, making it the most common female cancer.(Biris P., 2013)

In 2008, breast cancer caused 458,503 deaths worldwide (13.7% of cancer deaths in women and 6.0% of all cancer deaths for men and women together). Lung cancer, the second most common cause of cancer-related death in women, caused 12.8% of cancer deaths in women (18.2% of all cancer deaths for men and women together).

The incidence of breast cancer varies greatly around the world: it is lowest in less-developed countries and greatest in the more-developed countries. In the twelve world regions, the annual age-standardized incidence rates per 100,000 women are as follows: in Eastern Asia, 18; South Central Asia, 22; sub-Saharan Africa, 22; South-Eastern Asia, 26; North Africa and Western Asia, 28; South and Central America, 42; Eastern Europe, 49; Southern Europe, 56; Northern Europe, 73; Oceania, 74; Western Europe, 78; and in North America, 90.(Biris P., 2013)

The number of cases worldwide has significantly increased since the 1970s, a phenomenon partly attributed to the modern lifestyles. Breast cancer is strongly related to age with only 5% of all breast cancers occurring in women under 40 years old. There were more than 41,000 newly diagnosed cases of breast cancer registered in England in 2011, around 80% of these cases were in women age 50 or older. Based
on U.S. statistics in 2015 there were 2.8 million women affected by breast cancer (Biris P., 2013)

2-11 History

Because of its visibility, breast cancer was the form of cancer most often described in ancient documents. Because autopsies were rare, cancers of the internal organs were essentially invisible to ancient medicine. Breast cancer, however, could be felt through the skin, and in its advanced state often developed into fungating lesions: the tumor would become necrotic (die from the inside, causing the tumor to appear to break up) and ulcerate through the skin, weeping fetid, dark fluid. (Turcotte F Jan 2011).

The oldest evidence of breast cancer was discovered in Egypt in 2015 and dates back to the Sixth Dynasty. The study of a woman's remains from the necropolis of Qubbet el-Hawa showed the typical destructive damage due to metastatic spread. The Edwin Smith Papyrus describes 8 cases of tumors or ulcers of the breast that were treated by cauterization. The writing says about the disease, "There is no treatment." For centuries, physicians described similar cases in their practices, with the same conclusion. Ancient medicine, from the time of the Greeks through the 17th century, was based on humoralism, and thus believed that breast cancer was generally caused by imbalances in the fundamental fluids that controlled the body, especially an excess of black bile. Alternatively, patients often saw it as divine punishment. In the 18th century, a wide variety of medical explanations were proposed, including a lack of sexual activity, too much sexual activity, physical injuries to the breast, curdled breast milk, and various forms of lymphatic blockages, either internal or due to restrictive clothing. In the 19th century, the Scottish surgeon John Rodman. (Turcotte F Jan 2011).
said that fear of cancer caused cancer, and that this anxiety, learned by example from the mother, accounted for breast cancer's tendency to run in families. (Turcotte F Jan 2011).

Although breast cancer was known in ancient times, it was uncommon until the 19th century, when improvements in sanitation and control of deadly infectious diseases resulted in dramatic increases in lifespan. Previously, most women had died too young to have developed breast cancer. Additionally, early and frequent childbearing and breastfeeding probably reduced the rate of breast cancer development in those women who did survive to middle age. (Turcotte F Jan 2011).

Because ancient medicine believed that the cause was systemic, rather than local, and because surgery carried a high mortality rate, the preferred treatments tended to be pharmacological rather than surgical. Herbal and mineral preparations, especially involving the poison arsenic, were relatively common. (Turcotte F Jan 2011).

Mastectomy for breast cancer was performed at least as early as AD 548, when it was proposed by the court physician Aetios of Amida to Theodora. It was not until doctors achieved greater understanding of the circulatory system in the 17th century that they could link breast cancer's spread to the lymph nodes in the armpit. The French surgeon Jean Louis Petit (1674–1750) and later the Scottish surgeon Benjamin Bell (1749–1806) were the first to remove the lymph nodes, breast tissue, and underlying chest muscle. (Turcotte F Jan 2011).

Their successful work was carried on by William Stewart Halsted who started performing radical mastectomies in 1882, helped greatly by advances in general surgical technology, such as aseptic technique and anesthesia. The Halsted radical mastectomy often involved removing both breasts, associated lymph nodes, and the underlying chest muscles. This often led to long-term pain and disability, but was seen as necessary in order to prevent the cancer from recurring. Before the advent of the Halsted radical mastectomy, 20-year survival rates were only 10%; Halsted's surgery raised that rate to 50%. Extending Halsted's work, Jerome Urban promoted superradical mastectomies, taking even more tissue, until 1963, when the ten-year survival rates proved equal to the less-damaging radical mastectomy. (Turcotte F Jan 2011).

Radical mastectomies remained the standard of care in America until the 1970s, but in Europe, breast-sparing procedures, often followed radiation therapy, were generally adopted in the 1950s. One reason for this striking difference in approach may be the
structure of the medical professions: European surgeons, descended from the barber surgeon, were held in less esteem than physicians; in America, the surgeon was the king of the medical profession. Additionally, there were far more European women surgeons: Less than one percent of American surgical oncologists were female, but some European breast cancer wards boasted a medical staff that was half female. American health insurance companies also paid surgeons more to perform radical mastectomies than they did to perform more intricate breast-sparing surgeries. (Turcotte F Jan 2011).

Breast cancer staging systems were developed in the 1920s and 1930s
During the 1970s, a new understanding of metastasis led to perceiving cancer as a systemic illness as well as a localized one, and more sparing procedures were developed that proved equally effective. Modern chemotherapy developed after World War II. (Turcotte F Jan 2011).

The French surgeon Bernard Peyrilhe (1737–1804) realized the first experimental transmission of cancer by injecting extracts of breast cancer into an animal.

Prominent women who died of breast cancer include Anne of Austria, the mother of Louis XIV of France; Mary Washington, mother of George, and Rachel Carson, the environmentalist. (Turcotte F Jan 2011).

The first case-controlled study on breast cancer epidemiology was done by Janet Lane-Claypon, who published a comparative study in 1926 of 500 breast cancer cases and 500 control patients of the same background and lifestyle for the British Ministry of Health. (Turcotte F Jan 2011).

In the 1980s and 1990s, thousands of women who had successfully completed standard treatment then demanded and received high-dose bone marrow transplants, thinking this would lead to better long-term survival. However, it proved completely ineffective, and 15–20% of women died because of the brutal treatment. (Turcotte F Jan 2011).

The 1995 reports from the Nurses’ Health Study and the 2002 conclusions of the Women's Health Initiative trial conclusively proved that hormone replacement therapy significantly increased the incidence of breast cancer. (Turcotte F Jan 2011).

2-12 Society and culture

See also: Breast cancer awareness and List of people with breast cancer
Before the 20th century, breast cancer was feared and discussed in hushed tones, as if it were shameful. As little could be safely done with primitive surgical techniques, women tended to suffer silently rather than seeking care. When surgery advanced, and long-term survival rates improved, women began raising awareness of the disease and the possibility of successful treatment. The "Women's Field Army", run by the American Society for the Control of Cancer (later the American Cancer Society) during the 1930s and 1940s was one of the first organized campaigns. In 1952, the first peer-to-peer support group, called "Reach to Recovery", began providing post-mastectomy, in-hospital visits from women who had survived breast cancer.(Katzmarzyk PT 1 July 2012).

The breast cancer movement of the 1980s and 1990s developed out of the larger feminist movements and women's health movement of the 20th century. This series of political and educational campaigns, partly inspired by the politically and socially effective AIDS awareness campaigns, resulted in the widespread acceptance of second opinions before surgery, less invasive surgical procedures, support groups, and other advances in patient care.(Katzmarzyk PT 1 July 2012).

2-12-1 Pink ribbon
A pink ribbon is the most prominent symbol of breast cancer awareness. Pink ribbons, which can be made inexpensively, are sometimes sold as fundraisers, much like poppies on Remembrance Day. They may be worn to honor those who have been diagnosed with breast cancer, or to identify products that the manufacturer would like to sell to consumers that are interested in breast cancer—usually white, middle-aged, middle-class and upper-class, educated women.( Katzmarzyk PT 1 July 2012).

The pink ribbon is associated with individual generosity, faith in scientific progress, and a "can-do" attitude. It encourages consumers to focus on the emotionally appealing ultimate vision of a cure for breast cancer, rather than on the fraught path between current knowledge and any future cures.(Katzmarzyk PT 1 July 2012).

Wearing or displaying a pink ribbon has been criticized by the opponents of this practice as a kind of slacktivism, because it has no practical positive effect. It has also been criticized as hypocrisy, because some people wear the pink ribbon to show good will towards women with breast cancer, but then oppose these women's practical goals, like patient rights and anti-pollution legislation. Critics say that the feel-good
nature of pink ribbons and pink consumption distracts society from the lack of progress on preventing and curing breast cancer. It is also criticized for reinforcing gender stereotypes and objectifying women and their breasts. Breast Cancer Action launched the "Think Before You Pink" campaign, and said that businesses have co-opted the pink campaign to promote products that cause breast cancer, such as alcoholic beverages. (Katzmarzyk PT 1 July 2012).

2-12-2 Breast cancer culture

Breast cancer culture, or pink ribbon culture, is the set of activities, attitudes, and values that surround and shape breast cancer in public. The dominant values are selflessness, cheerfulness, unity, and optimism. Appearing to have suffered bravely is the passport into the culture. (Katzmarzyk PT 1 July 2012).

The woman with breast cancer is given a cultural template that constrains her emotional and social responses into a socially acceptable discourse: She is to use the emotional trauma of being diagnosed with breast cancer and the suffering of extended treatment to transform herself into a stronger, happier and more sensitive person who is grateful for the opportunity to become a better person. Breast cancer therapy becomes a rite of passage rather than a disease. To fit into this mold, the woman with breast cancer needs to normalize and feminize her appearance, and minimize the disruption that her health issues cause anyone else. Anger, sadness and negativity must be silenced. (Katzmarzyk PT 1 July 2012).

As with most cultural models, people who conform to the model are given social status, in this case as cancer survivors. Women who reject the model are shunned, punished and shamed. (Katzmarzyk PT 1 July 2012).

The culture is criticized for treating adult women like little girls, as evidenced by "baby" toys such as pink teddy bears given to adult women. (Katzmarzyk PT 1 July 2012).

The primary purposes or goals of breast cancer culture are to maintain breast cancer's dominance as the preëminent women's health issue, to promote the appearance that society is "doing something" effective about breast cancer, and to sustain and expand the social, political, and financial power of breast cancer activists. (Katzmarzyk PT 1 July 2012).
2-12-3 Emphasis

Compared to other diseases or other cancers, breast cancer receives a proportionately greater share of resources and attention. In 2001 MP Ian Gibson, chairman of the House of Commons of the United Kingdom all party group on cancer stated "The treatment has been skewed by the lobbying, there is no doubt about that. Breast cancer sufferers get better treatment in terms of bed spaces, facilities and doctors and nurses. Breast cancer also receives significantly more media coverage than other, equally prevalent cancers, with a study by Prostate Coalition showing 2.6 breast cancer stories for each one covering cancer of the prostate. Ultimately there is a concern that favouring sufferers of breast cancer with disproportionate funding and research on their behalf may well be costing lives elsewhere Partly because of its relatively high prevalence and long-term survival rates, research is biased towards breast cancer. Some subjects, such as cancer-related fatigue, have been studied little except in women with breast cancer.(Katzmarzyk PT 1 July 2012).

One result of breast cancer's high visibility is that statistical results can sometimes be misinterpreted, such as the claim that one in eight women will be diagnosed with breast cancer during their lives—a claim that depends on the unrealistic assumption that no woman will die of any other disease before the age of 95. This obscures the reality, which is that about ten times as many women will die from heart disease or stroke than from breast cancer.(Katzmarzyk PT 1 July 2012).

The emphasis on breast cancer screening may be harming women by subjecting them to unnecessary radiation, biopsies, and surgery. One-third of diagnosed breast cancers might recede on their own. Screening mammography efficiently finds non-life-threatening, asymptomatic breast cancers and pre-cancers, even while overlooking serious cancers. According to H. Gilbert Welch of the Dartmouth Institute for Health Policy and Clinical Practice, research on screening mammography has taken the "brain-dead approach that says the best test is the one that finds the most cancers" rather than the one that finds dangerous cancers.(Katzmarzyk PT 1 July 2012).

2-13 Pregnancy

Breast cancers occur during pregnancy at the same rate as breast cancers in non-pregnant women of the same age. Breast cancer then becomes more common in the 5 or 10 years following pregnancy but then becomes less common than among the general population. These cancers are known as postpartum breast cancer and have
worse outcomes including an increased risk of distant spread of disease and mortality. Other cancers found during or shortly after pregnancy appear at approximately the same rate as other cancers in women of a similar age. (Alter DA 2015).

Diagnosing a new cancer in a pregnant woman is difficult, in part because any symptoms are commonly assumed to be a normal discomfort associated with pregnancy. As a result, cancer is typically discovered at a somewhat later stage than average in many pregnant or recently pregnant women. Some imaging procedures, such as MRIs (magnetic resonance imaging), CT scans, ultrasounds, and mammograms with fetal shielding are considered safe during pregnancy; some others, such as PET scans are not. (Alter DA 2015).

Treatment is generally the same as for non-pregnant women. However, radiation is normally avoided during pregnancy, especially if the fetal dose might exceed 100 cGy. In some cases, some or all treatments are postponed until after birth if the cancer is diagnosed late in the pregnancy. Early deliveries to speed the start of treatment are not uncommon. Surgery is generally considered safe during pregnancy, but some other treatments, especially certain chemotherapy drugs given during the first trimester, increase the risk of birth defects and pregnancy loss (spontaneous abortions and stillbirths). Elective abortions are not required and do not improve the likelihood of the mother surviving or being cured. (Alter DA 2015).

Radiation treatments may interfere with the mother's ability to breastfeed her baby because it reduces the ability of that breast to produce milk and increases the risk of mastitis. Also, when chemotherapy is being given after birth, many of the drugs pass through breast milk to the baby, which could harm the baby. (Alter DA 2015).

Regarding future pregnancy among breast cancer survivors, there is often fear of cancer recurrence. On the other hand, many still regard pregnancy and parenthood to represent normalcy, happiness and life fulfillment. (Alter DA 2015).

2-14 Hormones

2-14-1 Birth control

In breast cancer survivors, non-hormonal birth control methods should be used as first-line options. Progestogen-based methods such as depot medroxyprogesterone acetate, IUD with Progestogen or Progestogen only pills have a poorly investigated
but possible increased risk of cancer recurrence, but may be used if positive effects outweigh this possible risk. (Rehm J August 2006).

2-14-2 Menopausal hormone replacement

In breast cancer survivors, it is recommended to first consider non-hormonal options for menopausal effects, such as bisphosphonates or selective estrogen receptor modulators (SERMs) for osteoporosis, and vaginal estrogen for local symptoms. Observational studies of systemic hormone replacement therapy after breast cancer are generally reassuring. If hormone replacement is necessary after breast cancer, estrogen only therapy or estrogen therapy with an intrauterine device with Progestogen may be safer options than combined systemic therapy. (Rehm J August 2006).

2-15 Breast Self-Exam:

Activists began promoting breast self-examination in the 1930s because their exhortation to not delay seeking treatment for suspicious lumps was not affecting the death rate. In the 1950s and 1960s, a film demonstrating breast self-examination, which was co-sponsored by the American Cancer Society and the National Cancer Institute, was shown to millions of American women. In the 1970s, researchers began complaining that women were being told to do this even though there had never been any evidence to suggest that it saved lives. (Aronwitz.R, 2007).

Breast self-exam (BSE) is a step-by-step approach that a woman can use to look at and feel her breasts. However, BSE is not recommended as a screening tool for breast cancer. Although it seemed promising when it was first introduced, studies have shown BSE does not offer the early detection and survival benefits of other screening tests. A meta-analysis combined the results of the two largest randomized controlled trials on BSE. It found no difference in breast cancer survival between women who did routine BSE and those who did not. And, women who did BSE had more false positive results, leading to nearly twice as many biopsies with benign (not cancer) results as women who did not do BSE. (Susan G, 2016).

A breast self-exam is a check-up a woman does at home to look for changes or problems in the breast tissue. Many women feel that doing this is important to their health. However, experts do not agree about the benefits of breast self-exams in finding breast cancer or saving lives. Talk to your health care provider about whether breast self-exams are right for you. The best time to do a monthly self-breast exam
is about 3 to 5 days after your period starts. Do it at the same time every month. Your breasts are not as tender or lumpy at this time in your monthly cycle. If you have gone through menopause, do your exam on the same day every month. Begin by lying on your back. It is easier to examine all breast tissue if you are lying down.

- Place your right hand behind your head. With the middle fingers of your left hand, gently yet firmly press down using small motions to examine the entire right breast.
- Next, sit or stand. Feel your armpit, because breast tissue goes into that area.
- Gently squeeze the nipple, checking for discharge. Repeat the process on the left breast.
- Use one of the patterns shown in the diagram to make sure that you are covering all of the breast tissue. Next, stand in front of a mirror with your arms by your side.
- Look at your breasts directly and in the mirror. Look for changes in skin texture, such as dimpling, puckering, indentations, or skin that looks like an orange peel.
- Also note the shape and outline of each breast.
- Check to see if the nipple turns inward.
- Do the same with your arms raised above your head.

Your goal is get used to the feel of your breasts. This will help you to find anything new or different. If you do, call your provider right away. (A.D.A.M, 2015).

2-16 The Five Steps of a Breast Self-Exam:

Step 1: Begin by looking at your breasts in the mirror with your shoulders straight and your arms on your hips.

Here's what you should look for:

- Breasts that are their usual size, shape, and color
- Breasts that are evenly shaped without visible distortion or swelling
  
  If you see any of the following changes, bring them to your doctor's attention:

- Dimpling, puckering, or bulging of the skin
- A nipple that has changed position or an inverted nipple (pushed inward instead of sticking out)
- Redness, soreness, rash, or swelling

Step 2: Now, raise your arms and look for the same changes.

Step 3: While you're at the mirror, look for any signs of fluid coming out of one or both nipples (this could be a watery, milky, or yellow fluid or blood).
Step 4: Next, feel your breasts while lying down, using your right hand to feel your left breast and then your left hand to feel your right breast. Use a firm, smooth touch with the first few finger pads of your hand, keeping the fingers flat and together. Use a circular motion, about the size of a quarter.

Cover the entire breast from top to bottom, side to side — from your collarbone to the top of your abdomen, and from your armpit to your cleavage.

Follow a pattern to be sure that you cover the whole breast. You can begin at the nipple, moving in larger and larger circles until you reach the outer edge of the breast. You can also move your fingers up and down vertically, in rows, as if you were mowing a lawn. This up-and-down approach seems to work best for most women. Be sure to feel all the tissue from the front to the back of your breasts: for the skin and tissue just beneath, use light pressure; use medium pressure for tissue in the middle of your breasts; use firm pressure for the deep tissue in the back. When you've reached the deep tissue, you should be able to feel down to your ribcage.

Step 5: Finally, feel your breasts while you are standing or sitting. Many women find that the easiest way to feel their breasts is when their skin is wet and slippery, so they like to do this step in the shower. Cover your entire breast, using the same hand movements described in step 4.

The breast self-exam is a way that you can check your breasts for changes (such as lumps or thickenings). It includes looking at and feeling your breast. Any unusual changes should be reported to your doctor. When breast cancer is detected in its early stages, your chances of surviving the disease are greatly improved. (breast cancer .org, 2016).

If you choose to do self-breast exam, follow the steps described below:

**In the mirror:**

1. Stand undressed from the waist up in front of a large mirror in a well-lit room. Look at your breasts. Don't be alarmed if they do not look equal in size or shape. Most women's breasts aren't. With your arms relaxed by your sides, look for any changes in size, shape, or position, or any changes to the skin of the breasts. Look for any skin puckering, dimpling, sores, or discoloration. Inspect your nipples and look for any sores, peeling, or change in the direction of the nipples.
2. Next, place your hands on your hips and press down firmly to tighten the chest muscles beneath your breasts. Turn from side to side so you can inspect the outer part of your breasts.

3. Then bend forward toward the mirror. Roll your shoulders and elbows forward to tighten your chest muscles. Your breasts will fall forward. Look for any changes in the shape or contour of your breasts.

4. Now, clasp your hands behind your head and press your hands forward. Again, turn from side to side to inspect your breasts' outer portions. Remember to inspect the border underneath your breasts. You may need to lift your breasts with your hand to see this area.

5. Check your nipples for discharge (fluid). Place your thumb and forefinger on the tissue surrounding the nipple and pull outward toward the end of the nipple. Look for any discharge. Repeat on your other breast.

**In the shower:**

6. Now, it's time to feel for changes in the breast. It is helpful to have your hands slippery with soap and water. Check for any lumps or thickening in your underarm area. Place your left hand on your hip and reach with your right hand to feel in the left armpit. Repeat on the other side.

7. Check both sides for lumps or thickenings above and below your collarbone.

8. With hands soapy, raise one arm behind your head to spread out the breast tissue. Use the flat part of your fingers from the other hand to press gently into the breast. Follow an up-and-down pattern along the breast, moving from bra line to collarbone. Continue the pattern until you have covered the entire breast. Repeat on the other side.

**Lying down:**

9. Next, lie down and place a small pillow or folded towel under your right shoulder. Put your right hand behind your head. Place your left hand on the upper portion of your right breast with fingers together and flat. Body lotion may help to make this part of the exam easier.

10. Think of your breast as a face on a clock. Start at 12 o'clock and move toward 1 o'clock in small circular motions. Continue around the entire circle until you reach 12 o'clock again. Keep your fingers flat and in constant contact with your breast. When the circle is complete, move in one inch toward the nipple and
complete another circle around the clock. Continue in this pattern until you've felt the entire breast. Make sure to feel the upper outer areas that extend into your armpit.

11. Place your fingers flat and directly on top of your nipple. Feel beneath the nipple for any changes. Gently press your nipple inward. It should move easily.

12. Interestingly, cancerous tumors are more likely to be found in certain parts of the breast over others. If you divide the breast into 4 sections, the approximate percentage of breast cancers found in each area are (in clockwise pattern):

13. 41% upper, outer quadrant.
14. 14% upper, inner quadrant.
15. 5% lower, inner quadrant.
16. 6% lower, outer quadrant.
17. 34% in the area behind the nipple.
18. Almost half occur in the upper outer quadrant of the breast, towards the armpit. Some physicians refer to this region as the "tail" of the breast and encourage women to examine it closely. See your health care provider if you discover any new breast changes. Conditions that should be checked by a doctor include:

19. An area that is distinctly different from any other area on either breast
20. A lump or thickening in or near the breast or in the underarm that persists through the menstrual cycle
21. A change in the size, shape, or contour of the breast
22. A mass or lump, which may feel as small as a pea
23. A marble-like area under the skin
24. A change in the feel or appearance of the skin on the breast or nipple (dimpled, puckered, scaly, or inflamed)
25. Bloody or clear fluid discharge from the nipples
26. Redness of the skin on the breast or nipple
27. (Traci C. Johnson, MD, FACOG, 2014)
28. A breast self-exam involves checking your breasts for lumps or changes. Many breast problems are first discovered by women themselves, often by accident. Breast lumps can be noncancerous (benign) or cancerous (malignant). Breast cancer can occur at any age, though it is most common in women older than 50. Lumps or changes also may be signs of other breast conditions, such as mastitis or a fibroadenoma. Medical experts don't recommend regular breast self-
examinations. Studies show that self-exams don’t save women’s lives and that they can lead to unneeded tests, such as biopsies. But some experts believe that women should know how their breasts look and feel (breast self-awareness) so any breast changes can be reported to a doctor. The best time to examine your breasts is usually 1 week after your menstrual period starts, when your breasts are least likely to be swollen or tender. Examining your breasts at other times in your menstrual cycle may make it hard to compare results of one exam with another. If your menstrual cycle is irregular, or if you have stopped menstruating due to menopause or the removal of your uterus (hysterectomy), do your examination on a day of the month that’s easy to remember. If you are breast-feeding, try doing your breast exams after a feeding or after using a breast pump. The breasts should have as little milk as possible, so the exam will be easier and more

29. comfortable. A breast self-exam normally doesn’t cause any discomfort. If your breasts are tender because your menstrual period is about to begin, you may feel slight discomfort when you press on your breasts. To do a breast self-exam:

30. Remove all your clothes above the waist. Lie down. Lying down spreads your breasts evenly over your chest and makes it easier to feel lumps or changes. Check your entire breast by feeling all of the tissue from the collarbone to the bottom of the bra line and from the armpit to the breastbone.

31. Use the pads of your three middle fingers—not your fingertips. Use the middle fingers of your left hand to check your right breast. Use the middle fingers of your right hand to check your left breast. You can use an up-and-down pattern or a spiral pattern. Move your fingers slowly in small coin-sized circles.

32. Use three different levels of pressure to feel all of your breast tissue. Light pressure is needed to feel the tissue close to the skin surface. Medium pressure is used to feel a little deeper, and firm pressure is used to feel your tissue close to your breastbone and ribs. Avoid lifting your fingers away from the skin as you feel for lumps, unusual thicknesses, or changes of any kind.

33. When in doubt about a particular lump, check your other breast. If you find the same kind of lump in the same area on the other breast, both breasts are probably normal. In addition to examining your breasts while lying down, you may also check them while in the shower. Soapy fingers slide easily across the breast and may make it easier to feel changes. While standing in a shower, place one arm over your head and lightly soap your breast on that side. Then, using the flat
surface of your fingers—not the fingertips—gently move your hand over your breast, feeling carefully for any lumps or thickened areas. It takes practice to perform a breast self-exam. Having fibrocystic lumps also may make a breast self-exam difficult, because lumps occur throughout the breast. Ask your doctor for tips that can help you do it correctly. After you know what your breasts normally look and feel like, any changes should be checked by a doctor. Changes may include:

34. Any new lump. It may or may not be painful to touch.
35. Unusual thick areas.
36. Sticky or bloody discharge from your nipples.
37. Any changes in the skin of your breasts or nipples, such as puckering or dimpling.
38. An unusual increase in the size of one breast.
39. One breast unusually lower than the other.

40. Remember that most breast problems or changes are caused by something other than cancer. Even if you choose to do breast self-exams, you still need regular mammograms as well as regular breast checkups at your doctor's office or the mammogram center. The risk of doing breast self-exams is that you may find a breast change that makes you anxious and may lead to unnecessary tests (such as a biopsy). Also, a change you notice on a breast self-exam may be a kind of cancer that would never cause symptoms or threaten your life. But because no one can tell what kinds of cancer will cause problems, all cancers are treated. This means that you may end up having treatments (such as surgery, radiation, and chemotherapy) that you don't need. These treatments can cause harmful side effects. Because of these risks, many experts don't recommend breast self-exams. Others consider it an option for women. Talk with your doctor about breast self-exams (NATIONAL BREAST FAUNDATION, 2015).

41. Breast self-examination (BSE) is a screening method used in an attempt to detect early breast cancer. The method involves the woman herself looking at and feeling each breast for possible lumps, distortions or swelling. BSE was once promoted heavily as a means of finding cancer at a more curable stage, but large randomized controlled studies found that it was not effective in preventing death, and actually caused harm through needless biopsies, surgery, and anxiety. The World Health Organization, the Canadian Task Force on Preventive Health Care, and many other scientific organizations recommend against the use of breast self-
examinations. However, there is no consensus among organizations related to breast self-examination as the American College of Obstetrics and Gynecology, and the American Medical Association recommend monthly breast self-examination while the American Cancer Society, the National Cancer Institute, the United States (US) Preventative Services Task Force, and the National Comprehensive Cancer Network neither recommend nor discourage breast self-examination. (Nelson, H. 2009).

42. Limitations

43. According to a meta-analysis in the Cochrane Collaboration, two large trials in Russia and Shanghai found no beneficial effects of screening by breast self-examination "but do suggest increased harm in terms of increased numbers of benign lesions identified and an increased number of biopsies performed." They concluded, "At present, screening by breast self-examination or physical examination cannot be recommended. Although breast self-examination increases the number of biopsies performed on women, and thus revenue for the breast cancer industry, it does not reduce mortality from breast cancer. In a large clinical trial involving more than 260,000 female Chinese factory workers, half were carefully taught by nurses at their factories to perform monthly breast self-exam, and the other half were not. The women taught self-exam detected more benign (normal or harmless lumps) or early-stage breast disease, but equal numbers of women died from breast cancer in each group. Because breast self-exam is not proven to save lives, it is no longer routinely recommended by health authorities for general use. It may be appropriate in women who have a particularly high risk of developing breast cancer. Some charitable organizations, whose donations depend on promoting fear of breast cancer, still promote this technique as a one-size-fits-all, universal screening approach, even in the low-risk women who are most likely to be harmed by unnecessary invasive follow-up procedures. Among groups promoting evidence-based medicine, awareness of breast health and familiarity with one's own body is typically promoted instead of self-exams. (Kosters, J. 2003).

46. Breast self-examinations are based on an incorrect theory of cancer development which assumes steady growth of the tumor. According to breast cancer specialist and surgeon Susan Love, "Breast cancer doesn't work like that...it's sneaky. You could examine yourself every day and suddenly find a walnut. Among women
with high-risk BRCA mutations, about 10% said that performing breast self-examination increased their anxiety. Half of those who did perform BSE felt that it gave them a sense of control. Learning breast self-examination increases a woman's level of depression, worrying, and anxiety about breast cancer. Greater anxiety about breast cancer is associated with a higher likelihood of performing breast self-examination. Women are also more likely to perform breast self-examination if they have experienced a false positive error from screening mammography (being wrongly told that breast cancer may be present, when the woman is actually cancer-free). (Gayle.A,2010)

2-17 Methods for breast palpation:
A variety of methods and patterns are used in breast self-exams. Most methods suggest that the woman stand in front of a mirror with the torso exposed to view. She looks in the mirror for visual signs of dimpling, swelling, or redness on or near the breasts. This is usually repeated in several positions, such as while having hands on the hips, and then again with arms held overhead. The woman then palpates her breasts with the pads of her fingers to feel for lumps (either superficial or deeper in tissue) or soreness. There are several common patterns, which are designed to ensure complete coverage. The vertical strip pattern involves moving the fingers up and down over the breast. The pie-wedge pattern starts at the nipple and moves outward. The circular pattern involves moving the fingers in concentric circles from the nipple outward. Some guidelines suggest mentally dividing the breast into four quadrants and checking each quadrant separately. The palpation process covers the entire breast, including the “axillary tail” of each breast that extends toward the axilla (armpit). This is usually done once while standing in front of the mirror and again while lying down. Finally, women that are not breastfeeding gently squeeze each nipple to check for any discharge. Various mnemonic devices are used as teaching devices. One is called the seven P’s of BSE, after seven steps that are named to have the same first initial: Positions, Perimeter, Palpation, Pressure, Pattern, Practice, and Planning what to do if a change is found in the breast tissue. For pre-menopausal women, most methods suggest that the self-exam be performed at the same stage of the woman’s menstrual cycle, because the normal hormone fluctuations can cause changes in the breasts. The most commonly recommended time is just after the end of menstruation, because the
breasts are least likely to be swollen and tender at this time. Women who are postmenopausal or have irregular cycles might do a self-exam once a month regardless of their menstrual cycle. Teaching correctly performed breast self-examinations normally takes a trained professional seven to ten minutes. (Absetzp.A, 2003).

2-18 A well woman examination:

is an exam offered to women to review elements of their reproductive health. It is recommended once a year for most women. The exam includes a breast examination, a pelvic examination and a pap smear but may also include other procedures. Such examinations can cause patients stress or embarrassment. Hospitals therefore employ strict policies relating to the provision of consent by the patient, the availability of chaperones at the examination, and the absence of important tests included in an examination is the breast exam, pelvic exam and the pap test, although some doctors consider other tests in the examination, including measurement of blood pressure, Human immune deficiency virus (HIV) testing, and other laboratory tests such as urinalysis, CBC (Complete blood count) and testing for other sexually transmitted diseases. The procedure is important also to detect certain cancers, especially breast and cervical cancer. (Kath, E, 2006).

2-19 Breast examination:

2-19-1 Visual inspection:

The breast examination begins with a visual inspection. With the patient in a prone or seated position, the medical professional will look at both breasts to check the color, symmetry, dimensions according to age, lean body mass, the physiological (pregnancy and lactation) and race, looking for abnormalities, such as bulges and shrinkage. One of these abnormalities is changed in the areola or nipple. If it is flattened or retracted (umbilicated), it is necessary to consider the possibility of a cancerous lesion which has caused the malformation. (Parrondo, P, 2013)

2-19-2 Palpation:

Next, the breasts are palpated, again with the patient lying or sitting. The patient has to lift the arm and put one hand behind her head. With this position, the entire gland is palpated. It is also important to examine the armpits, because of masses that may be found there. The test is executed pressing the gland with two or three fingers against
the chest wall, making a radial route or by quadrants. The nipple is also squeezed check for secretions, such as secretion of milk (galactorrhea), serous, blood or purulent secretions. If a node is detected, it is necessary to determine its place, size, shape, edges, consistency and sensitivity. (Parrondo.P, 2013).

In addition to the yearly check by a professional, women over the age of 18 should also perform this examination monthly. It is important because regular and comprehensive examinations of the breasts can be used to find breast changes that occur between every clinical examination and detect early breast cancer. This auto examination should be performed seven days after the onset of the menstrual period. If a woman finds a lump or notice any changes in her breast, she should seek medical attention promptly. (Parrondo.P, 2013).

**2-20 Further examination of the breasts:**

A mammogram or mammography is a special x-ray of the breasts. They are the procedure most likely to detect early breast cancer in asymptomatic women. Mammograms can show tumors long before they are large enough to palpate. They are recommended for women who have symptoms of breast cancer or who are at increased risk of developing the disease. They are performed with the patient standing, the breast pressed between two plastic plates, as the image is taken. The interpretation has to be performed by a specialist. Breast ultrasound is a complementary study of mammography. In many women the tissue that makes up the breast is very dense, representing fibrous tissue and glandular tissue, which produces milk during lactation. This limits the radiologist interpreting the study, so, in these cases, the ultrasound is helpful, since this is capable of distinguishing tumors in women with dense breast tissue, where identification is otherwise difficult. Additionally, it is advisable to follow up a mammogram that shows indications of tumors with an ultrasound, to confirm, before more invasive procedures are undertaken. (Helen.B, 2011).

A breast self-examination (BSE) is a technique which allows an individual to examine his/her breast tissue for any physical or visual changes. It is often used as an early detection method for breast cancer. Both men and women should perform a BSE at least once each month beginning at age 18. (Maurer foundation, 2016).
2-21 Breast Self-Exam Tips

1. Do your BSE at the end of your monthly period.
2. If you are pregnant, no longer have periods or your period is irregular, choose a specific day each month.
3. This should not be performed in the shower or with lotion on your skin or fingers.
4. If you find a lump or notice other unusual changes, Don’t panic. About 80% of lumps found are not cancerous. See your doctor promptly for further evaluation.

(Maurer foundation, 2016).

2-22 Breast Self-Exam parts:

2-22-1 Part 1: TOUCH

Check the OUTER HALF of your right breast. Lie down and roll on to your left side to examine your right breast. Place your right hand, palm up on your forehead. Your breast should lie as flat on your chest as possible. It may be easier and more comfortable if you put a pillow behind your shoulder or back. (Maurer foundation, 2016).

Using the flat pads of your three middle fingers—not the tips—move the pads of your fingers in little circles, about the size of a dime. For each little circle, change the amount of pressure so you can feel ALL levels of your breast tissue. Make each circle three times—once light, once medium, and once deep—before you move on to the next area. (Maurer foundation, 2016).

Start the circles in your armpit and move down to just below the bra line. Then slide your fingers over—just the width of one finger and move up again. Don’t lift your fingers from your breast as you move them to make sure you feel the entire area. Continue this up-and-down vertical strip pattern—from your collarbone to just below your bra line—until you reach the nipple. (Maurer foundation, 2016).

Check the INNER HALF of your right breast. When you reach the nipple, remove pillow roll on to your back, remove your hand from your forehead and place this arm at a right angle (see drawing). Carefully check the nipple area using the same circular pressures as before, without squeezing. Then examine the remaining breast tissue using the up-and-down vertical strip pattern, until you reach the middle of your chest. Roll on to your right side and repeat these steps on your left breast, using your right hand. (Maurer foundation, 2016).
2-22-2 Breast Self-Exam Part 2: LOOK

Stand in front of a mirror and look closely at your breasts in the following three positions, viewing from the right and left as well as facing forward. Check for changes in the following:

- **Shape**: Compare one to the other. One breast may normally be larger than the other, but sudden changes in size should not occur.

- **Skin**: Check for rash, redness, puckering, dimpling, or orange-peel-textured appearance.

- **Nipples**: Check for any physical changes such as a sudden inversion, scaliness, redness, itching, swelling, or discharge.

- **Vein patterns**: Look for a noticeable increase in size or number of veins compared to the other breast.

Arms at your sides. Arms raised above your head bending forward, and Place hands on your hips and hunch over. (Maurer foundation, 2016)

2-23 The Importance of the Breast Self-Examination:

Breast symptoms are common, accounting for > 15 million physician visits a year. The majority of breast cancers are found by women themselves; self-examination optimizes the chances of a woman finding a change from normal. What is breast cancer? The practice of Breast Self-Examination (BSE) has been seen to empower women, taking responsibility for their own health. Therefore, BSE is recommended for raising awareness among women at risk. It is important to encourage women to become aware of the feel and shape of their breasts, so that they are familiar with what is normal for them and report any changes to their general practitioner. The for asymmetry in shape, nipple inversion, bulging, and dimpling. (Angelina Delgado, 2014).

A woman’s breasts are constantly changing. They change throughout the menstrual cycle, when breastfeeding, during pregnancy and in menopause. Most breast changes are not cause for concern. But you should know how your breasts look and feel normally so you can detect any changes that might indicate a problem. One way that can be done is through regular breast self-exams.

Breast self-exams to aid in the detection of breast cancer are considered optional by the American Cancer Society. Rather, you should be familiar with the normal consistency of your breasts and underlying tissue so you can be aware of any
abnormal lumps or other changes. You should, however, get a regularly scheduled mammogram and clinical breast exam, which are recommended to help detect breast cancer.

Breast problems usually are benign, such as fibrocystic changes, cysts (fluid-filled sacs), or fibroadenomas (solid lumps). Most women have lumps or changes in their breasts that fluctuate during their menstrual cycles. This is normal, as is a firm ridge along the bottom of each breast. Breasts also may feel different in different places.

You can still perform breast self-exams even if you have breast implants. You may want to ask your doctor to help identify the edges of the implants so you know what you are feeling. A woman who is pregnant or breastfeeding also can perform regular breast self-exams.

The best time to do a breast self-exam is on a monthly basis, usually about three to five days after the end of your period when your breasts are less tender or swollen. If you do not have a period, try to remember to do the exam on the same day every month.

Changes to look out for during a breast self-exam that you would need to talk to your doctor about include:

- Dimples, puckers, ridges or bulges of skin on the breast
- A nipple that turns in rather than sticks out
- Skin that itches, or has scales, sores or rashes
- Discharge from the nipple, other than breast milk
- Pain, redness, swelling or warmth

Any change in the color, shape, size or texture of the breast

Breast self-exams are an option for women starting in her 20s. They are not a substitute for regular screening mammograms or clinical breast exams to detect breast cancer. According to the American Cancer Society, women in their 20s and 30s should have a clinical breast exam at least once every three years. Beginning at age 40, women should have a clinical breast exam and screening mammogram every year.

Women at high risk of developing breast cancer should add magnetic resonance imaging screening to their yearly mammogram. A breast self-exam involves both looking and feeling. It can be performed while looking in a mirror and when in the shower or lying down. (Helen.B, 2011).
2-24 Highlights:

1. A breast self-exam is a screening technique you can do at home to check for breast lumps.
2. A self-exam is considered less effective than a mammogram.
3. You shouldn’t panic if you find a breast lump. Most breast lumps are noncancerous.

A breast self-exam is a screening technique you can do at home to check for breast lumps. A breast self-exam can help screen for:

- tumors
- cysts
- other abnormalities in the breasts

A breast self-exam was once thought to be a good screen for breast cancer. Now, a self-exam is considered to be less effective than other techniques, such as regular mammograms. This has led groups such as the American Cancer Society to deem breast self-exams optional. However, breast self-exams help you familiarize yourself with the shape, size, and texture of your breasts. This is important because it can help you determine if what you are feeling is normal or abnormal. Any time you feel an abnormality in your breast, tell your doctor. (Debra.S, 2016).

2-25 Prepare for a Breast Self-Exam:

The best time to do a breast self-exam is a few days after your monthly menstrual cycle ends. Hormonal changes can affect the size and feel of your breasts, so it is best to perform the exam when your breasts are in their normal state. Women who do not menstruate should choose a certain day to perform the exam, such as the first of each month. You should also keep a journal of your self-exams. This will help you track and record any changes you have noticed in your breasts. (Debra.S, 2016).

2-26 How to Perform a Breast Self-Exam:

1. Start by standing topless in front of a mirror with your hands at your sides.
   Visually inspect your breasts for the following:
   - changes in size, shape, or symmetry
   - dimpling
   - inverted nipples
   - puckering
   - asymmetrical ridges at the bottom
Check for these signs with your hands at your sides. Then, with your arms over your head, and again when lifting one breast at a time. (Debra.S, 2016).

1. Using the pads of your fingers, not the tips, inspect your breasts while lying down and again in the shower. The water and soap in the shower will allow your fingers to glide easily over your skin.

2. Using varying pressure and taking your time, massage your fingers over your breasts in a spiral pattern starting at the nipple. Make your way up to the top of your breast near the collarbone, to the center by your breastbone, and to the sides near your armpits. Do this by putting one arm over your head while massaging your breast with the other hand.


2-27 Risks of a Breast Self-Exam:

There is no medical risk involved in a breast self-exam. Finding a lump in your breast can be alarming, but a majority of breast lumps aren’t cancerous. They are typical caused by other, benign conditions. Breast self-exams have also been associated with an increase in unnecessary breast biopsies, procedures that involve the surgical removal of breast tissue. Because most abnormalities in breast tissue are noncancerous, the extra surgical procedures put women at risk for rare complications, such as bleeding and infection. (Debra.S, 2016).

2-28 After a Breast Self-Exam:

If you find a lump or abnormality, don’t panic. Remember that the vast majority of breast abnormalities turn out to be benign, or noncancerous. Besides cancer, breast lumps can be caused by:

- Adenofibroma: a benign tumor of the breast tissue
- Fibrocystic breast disease: painful, lumpy breasts caused by hormone changes
- Intraductal papilloma: a small, benign tumor of the milk ducts
- Mammary fat necrosis: lumps formed by bruised, dead, or injured fat tissue

This doesn’t mean that you should ignore a lump or abnormality. If you find a lump, make an appointment with your doctor to have your breast professionally examined. Breast Self-Examination (BSE) can be a valuable tool in diagnosing breast cancer at an early stage. It is important to remember that everyone’s breasts are different and that changes can be related to aging, menstrual cycle, pregnancy, menopause or hormone use. Normal breast tissue feels lumpy and uneven. It is normal for a
woman’s breast tissue to become swollen and tender right before or during her menstrual period. Nine out of 10 breast masses are detected through BSE. Eight out of every 10 breast masses are not cancerous, but that does not lessen the importance of performing BSE monthly. Regular BSE will help to identify changes that require further evaluation and possible treatment. (Debra.S, 2016).

2-29 Breast Self-Examination Changes to Report:

- Lumps, hard knots or thickening in the breast or underarm area
- Unusual swelling, warmth, redness or darkening that does not go away
- Change in the size or shape of your breast
- Dimpling or puckering of the skin
- An itch, scaly sore or rash on the nipple
- Pulling in of the nipple or other parts of the breast
- Nipple discharge that starts suddenly or is bloody
- Pain that is localized in one area and that does not vary with your monthly cycle

While breast cancer does not typically cause pain, you should see your primary healthcare provider for breast pain or any other finding that does not go away. Every woman is at risk for breast cancer, regardless of age, family history or current health. In fact, the majority of women who are diagnosed with the disease have none of the commonly known risk factors. Mammography screening done at regular intervals, together with clinical breast exams, and monthly breast self-examination, are the three techniques that provide the best means of early detection of breast cancer. Finding a lump or change in your breasts does not mean you have cancer. Only your doctor can be sure. Report any change promptly. Menstruating women should do BSE one week after their menstrual period begins when breasts are less lumpy and tender. Pregnant women should check their breasts on the same day each month. Breastfeeding mothers should check their breasts on the same day each month after emptying their breasts. Women who take hormone replacement therapy should do BSE on the same day every month. (Debra.S, 2016).
2-30 Breast Screening Guidelines:

2-30-1 For women between puberty-40:
- Monthly breast self-examination
- Breast examination by a trained health professional at least every three years
- First mammogram by age 40

2-30-2 For women 40 years and older:
- Monthly breast self-examinations
- Annual breast examination by a trained health professional
- Annual screening mammogram

Screening recommendations are for women who have no symptoms of breast cancer. Women identified as being high-risk for breast cancer should ask their physician for specific guidelines. (Debra.S, 2016).

2-30-3 For women under 50-years old:
- Employ annual clinical breast examinations and monthly breast self-examinations as your primary early detection protocol.
- Once a year, every year, without fail, schedule an appointment with your healthcare provider to perform a clinical breast examination. We recommend you schedule it on or near your birthday.
- Once a month, every month, without fail, set aside 15 minutes to conduct thorough breast self-examination. We recommend you schedule it on the first day of menstruation.
- Schedule a mammogram only if needed for diagnosis of a suspected lump. Even then, be sure to schedule that mammogram within the first 14 days of your menstrual cycle.
- In addition, you may wish to employ annual thermography screening between the ages of 30 and 50.
- If you are between the ages of 20 and 30, consider a thermogram every two years in addition to your monthly breast self-examinations. (Debra.S, 2016).

2-30-4 For women over 50-years old:
- Employ annual clinical breast examinations and monthly breast self-examinations as your primary early detection protocol.
Once a year, every year, without fail, schedule an appointment with your healthcare provider to perform a clinical breast examination. We recommend you schedule it on or near your birthday.

Once a month, every month, without fail, set aside 15 minutes to conduct a thorough breast self-examination. We recommend you schedule it on the first day of your period if you are still menstruating.

Schedule a mammogram if you discover a lump. Even then, be sure to schedule that mammogram within the first 14 days of your menstrual cycle if you are still menstruating.

Employ mammography screening every other year.

Consider thermography screening on alternate years.

If a positive result comes back from the thermogram, schedule a mammogram. (Debra.S, 2016).

Adult women of all ages are encouraged to perform a breast self-exam at least once month. If you’re new to breast self-exams, here are some guidelines:

Pick the same time of the month – Because of the normal hormonal fluctuations in a woman’s body that affect breast tissue, it is important to select the same time every month so you will be able to distinguish between a normal change and something that feels different.

Premenopausal women: Do your exam toward the end of your menstrual period. The end of the menstrual cycle is the time when hormonal changes have the least influence on breast tissue, and the breasts are the least tender. Postmenopausal women: Choose a day of the month (e.g., the 1st or 15th of the month) and consistently perform your breast self-exam on that same day every month.

Examine your breasts in the shower – Use circular motions to identify the geography of your breasts. The first few times you do this may feel strange. But you will get to know the feeling of each breast so well, that if a change does occur you’ll notice it immediately.

Perform the exam again that same day but lying down – This way you will develop a feeling for your breasts in a different position, allowing for greater knowledge of the way your breasts feel. Forty percent of diagnosed breast cancers are detected by women who feel a lump, so establishing a regular breast self-exam is very important. (Johns.H, 2007).
2-31 Perform Breast Self-Exam:

**Menstruating women:** Hormonal changes due to the menstrual cycle may make the breasts more lumpy or swollen. Women who are menstruating should perform breast self-exam from a few days to about a week after menstruation (period) has ended, when breasts are usually less tender or swollen. While organizations, such as the American Cancer Society, no longer recommend monthly breast self exams, performing regular exams in conjunction with other screening methods such as clinical breast exams can help women become familiar with their breasts and report changes to their physicians in a prompt manner. (Johns.H, 2007).

**Women who are no longer menstruating:** should do their BSE on the same day every month. Try to pick a day that is easy to remember, such as the first or fifteenth of every month, and make that the day each month for breast self-exam. (Johns.H, 2007).

**Women using oral contraceptives:** are encouraged to do their BSE each month on the day they begin a new package of pills. (Johns.H, 2007).

2-32 Breast Changes and Warning Signs To Watch for During Breast Self-Exam:

- Any new lump or hard knot found in the breast or armpit
- Any lump or thickening that does not shrink or lessen after your next period
- Any change in the size, shape or symmetry of your breast
- A thickening or swelling of the breast
- Any dimpling, puckering or indentation in the breast
- Dimpling, skin irritation or other change in the breast skin or nipple
- Redness or scaliness of the nipple or breast skin
- Nipple discharge (fluid coming from your nipples other than breast milk), particularly if the discharge is bloody, clear and sticky, dark or occurs without squeezing your nipple
- Nipple tenderness or pain
- Nipple retraction: turning or drawing inward or pointing in a new direction
- Any breast change that may be cause for concern If any of these changes or other abnormalities are noted, women should see their physicians as soon as possible for clinical evaluation. However, it is important to note that in the majority of cases
(80%), breast lumps and changes are not cancerous. Therefore, women should not allow their fear of breast cancer to keep them from visiting their physician if a lump or change is found. (Johns.H,2007).

2-33 Women with Normally Lumpy Breasts:

Even if a woman has normally lumpy breasts (typically called fibrocystic breasts), she can still learn the usual pattern of lumps and then point out new or unusual lumps to her physician. Lumpy breasts or breasts with benign (non-cancerous) masses or cysts can be more difficult to examine. In fact, without knowledgeable direction from the patient, it may be more difficult for a physician to differentiate between a new mass and a stable lump. If a woman's breasts are normally lumpy, she should note how many separate lumps she feels and their corresponding locations when performing self-exams. Then, during subsequent exams, she should check for any changes, particularly an increase in the size of lumps that persist after her period. Any changes should be reported to a physician or healthcare provider. (Azaiza & Cohen, 2006).

2-34 Breast Examination During and After Pregnancy:

Many women continue to perform breast self exams during pregnancy. Clinical breast exams should be performed by a healthcare professional on a monthly basis during pregnancy. It is especially important that a clinical breast exam be performed during the first doctor visit of the pregnancy, before the breasts go through significant physiologic changes. Some changes or lumps are more difficult to evaluate once the breasts have enlarged and become more nodular. (Azaiza & Cohen, 2006).

2-35 The Effectiveness of Breast Self Examination:

Breast cancer is the most common invasive in women, with more than one million cases and early 600,000 death occurring worldwide annually. Early detection of breast cancer in women through regular screening methods has been shown to decrease mortality. Early detection include three screening methods which are clinical breast examination (CBE), mammography and breast self examination. Actually these methods are designed to help women to reduce the fear of death due to breast cancer. Although they are aiming to the same target, they still have verity of differences. These differences include the age of the patient required for each method, the cost, the level of technology and the procedure. Monthly breast self-examination (BSE) includes both looking and feeling over the entire breast and chest area. Women should
use the pads, not the tips, of the three middle fingers when performing BSE. This essay will compare between different screening methods and give attention to the breast self examination and its effectiveness. (Azaiza& Cohen, 2006).

The nurse play an important role in breast self examination education which is the third method of breast cancer screening, in order to detect breast cancer early. Breast self examination (BSE)" is learn the normal look or feel of the breast, and check for changes every month just as patient period is end "BSE has a variation that accrues during the menstrual cycle, pregnancy and the menopause. Actually patient should notice the change of breast and they should distinguish if it is normal or those might be signals to the disease. However, as some researchers found that only 30% of women do BCE regularly per month. Studies found the reasons behind that that there are some women feel anxious to use BCE, other refuse it if there is no abnormal changes, or they feel they will get worried if they is suspicious changes. Honestly even women do BCE and detect a change may feel a fear to go to doctor and seek medical attention. Den of doubt, there are other factors such as, economic factors or lack of education. For that reason women should be thought how to use BCE and should be encouraged to do it. The steps of doing BCE are easy and every women can do (Bare et al., 2008).

Most breast tumors are detected by women, not health professionals, therefore breast self-examination (BSE) continues to be an efficacious strategy. The study objective was to analyze BSE performed by nursing professionals and factors that hinder their perseverance in this practice. This descriptive study was performed with 159 professionals: 40 nurses, 48 nurses’ aides, and 71 health agents from 19 Basic Health Units located in Fortaleza (Ceará, Brazil). Data collection was performed using a self-administered questionnaire, and the analysis was based on the Self Care Theory. Of the 159 professionals, 86 (54%) performed BSE on a monthly basis. Of the 73 professionals who did not perform BSE, 60 (82%) reported the reason for that was forgetting, 38 (52%) for not trusting the technique/did not know the correct technique, and 35 (48%) due to lack of health care. It was found that although most women reported performing BSE, the professionals felt insecure and would like to learn better about this technique. (Rio de Janeiro; 2007).

Breast self-examination (BSE) is a painless, cost-free and easy physical exam that allows premature detection of a neoplasia enabling efficient therapeutical action, all of which may extend the patient's life, avoid future and severe physical sequelae as well
as emotional, social and economical problemsThis examination is also extremely important so the woman it able to have better knowledge of her breasts typical aspects, such as shape, size, skin and nipple texture; all of which will greatly assist in the early diagnosis of any abnormality that may arise and, thus, lead to premature diagnosis, maybe avoiding breast mutilation. Systematic breast self-exams are recommended since the 1930's and have been incorporated into public health policies in the US since the 1950's. When performed monthly and correctly, this exam can increase the chances of early cancer detection leading to better treatment and more favorable diagnostics. ( Rio de Janeiro; 2007).

The World Health Organization (WHO) estimates that 1,050,000 new cases of breast cancer arise annually in the world. Breast cancer affects women in their bio-psycho-social and spiritual dimensions, as it is considered a disease whose medium and long term consequences may cause breast mutilation and psychological, psycho spiritual and social traumas, including anxiety, despair, fear and depression and other serious repercussions in the family among which death can also be cited. Breast cancer is more common in women. The National Cancer Institute estimates that in 2008, 49,400 women will be diagnosed with breast cancer in Brazil; the death rate will be of 51 cases in every 100,000 women group. In the Northeast region, the death rate is of 28.4 cases and in the state of Ceará it is of 35.65 cases for every 100,000 women. Even though the cause of breast cancer is still considered idiopathic, some factors appear to increase the risk of developing it. Some of the aregenetical factors, emotional conditions, hormonal alterations, and diabetes. Added to the list of risk factors is the occurrence of such neoplasia in younger and younger patients (WHO 2008).

Nursing professionals which work in primary health care services can give information and orient patients on the correct realization of BSE. According to the normative and recommendations of the Ministry of Health for the control of breast cancer published in 2004, educational actions must be developed through breast palpation of the patient's own breasts by herself as a strategy for body care. The lack of care for oneself, possibly caused by the patient's demotivation before the ever-increasing amount of household chores she is responsible for contributes to the increase in late cancer diagnoses in young women while in their flourishing productive ages. (WHO 2008).

The self-exam constitutes a form of care for the self and the person's engagement in
health actions, since it is carried out by the person herself, for her own benefit, through activities or actions that may satisfy her own necessities, be them physiological, developmental or behavioral. Therefore, the theory of Self Care has been chosen which is defined as the group of activities which a person carries out consciously and deliberately towards his benefit for the maintenance of life, health and his well-being. It determines that the agent of self-care should be able to satisfy its own necessities, identifying limitations and defining what may or must be done to improve health conditions. It proposes the development of human skills, under the influence of basic conditioning factors, such as age, sex, development state, health state, sociocultural orientation, family system, life standards, environmental factors, adequation and availability of resources. The requirements for self-care are comprised of actions aimed at the provision of knowledge and necessary practices to human development functioning and maintenance. (Orem DE, 1995).
Previous studies

1-Study: Breast Cancer Deaths Higher in Southern Nevadans

Survival rate stands nearly 5 percent below the national average for Southern Nevadans and is especially low for state's black and Filipina women.

Breast cancer was the most common type of new cancer diagnosed in women in the United States in 2015. It was the second most deadly cancer after lung, accounting for an estimated 40,290 deaths. The lifetime risk for an American woman of developing breast cancer is 12.3 percent. Largely due to increases in screening and improvements in treatment, mortality rates have declined overall by 36 percent since their peak in 1989. Yet, the gains have not been realized uniformly across all regions or all racial/ethnic groups in the U.S.

In this study, Dr. Paulo Pinheiro, an associate professor in UNLV’s School of Community Health Sciences, and students Karen Callahan, Nevena Cvijetic, and Rachel E. Kelly collaborated with the Nevada Central Cancer Registry and the Sylvester Comprehensive Cancer Center of the University of Miami Miller School of Medicine to produce a telling publication about the breast cancer rate disparities among women in Nevada. The results were published in the article Worse Breast Cancer Outcomes for Southern Nevadans, Filipina and Black Women in the Springer Journal of Immigrant and Minority Health.

Methodology

Registry data were obtained for women diagnosed with breast cancer between 2003 and 2010. For the first time in Nevada, the researchers used enhanced registry data by making linkages with the National Death Index as well as the Social Security Administration Masterfile. This improved the accuracy of survival data by minimizing the number of missing deaths. Population-based, five-year, cause-specific overall survival was calculated for the entire state. Survival was stratified by race/ethnicity. Stage-specific survival was stratified by Nevada region.

The Results

Of the 11,111 cases of breast cancer identified from 2003 to 2010 in the Nevada Central Cancer Registry:

- Most cases were from Southern Nevada (68 percent) among women with private insurance (45 percent).
- Almost one-third of all cases occurred in women under age 55.
The overall five-year survival rate in Nevada was 84.4 percent, significantly lower than the U.S. proportion of 89.2 percent.

Survival in Northwestern Nevada (88.2 percent) was significantly higher than in Southern Nevada (83.0 percent). The rural survival estimate was also low (84.3 percent).

Women from Southern Nevada with breast cancer had a 16 percent higher risk of death than women from the state’s second highest population center, Northwestern Nevada.

By race/ethnicity, survival was highest for Asian (non-Filipina) women, at 89.5 percent.

Filipinas and blacks showed a disadvantage in survival compared to all other racial/ethnic groups analyzed, at 76.6 percent and 76.0 percent, respectively.

Stage at diagnosis was the most influential risk factor.

**Implications**

Research found that black women are likely to suffer from lower survival rates because they are more likely to have aggressive tumors and they are typically diagnosed at later stages. In addition, the researchers found differences in mammography screening, higher proportions of obesity, delays in treatment after diagnosis, and differences in treatment received, specifically lower likelihoods of mastectomy, radiation after surgery, and hormone therapy.

The disparity for Filipina women was largely attributable to late stage at diagnosis. Filipinas are also more likely than other Asian groups to experience obesity, which is linked to lower breast cancer survival.

The strongest predictor of breast cancer survival is stage at diagnosis, which has been linked to mammography screening. Nevada is in the lowest quartile for state mammography rates at 73 percent, compared to the U.S. average of 80 percent. Some research has shown that access to primary care is a better predictor for late stage at diagnosis than mammography rates. Nevada’s overall physician-to-population rank among U.S. states is 47th. These shortages are primarily seen in Southern Nevada, which has only 217 medical doctors (M.D.s) per 100,000 people, compared to Northwestern Nevada with of 336 M.D.s per 100,000 and the national average of 327 M.D.s per 100,000.
The Takeaway

Nevada’s goal must be to improve survival for women who do get breast cancer. Systemwide changes will be needed to see large overall gains in patient survival in Nevada, thus averting some of the 380 breast cancer deaths that occur each year among the state’s diverse women.

The new UNLV School of Medicine will be poised to play an important role in these changes. The school will welcome its first class in fall 2017. Southern Nevada has been the largest major metropolitan area in the U.S. without a public medical school. The school will bring enhanced research and clinical trial opportunities, grant funding, increases in residency and fellowship programs, and ultimately, an increase in the number and quality of physicians. Hopefully, this will serve to bridge the survival disparity between Northwestern and Southern Nevada that is also seen with other cancers.

Additionally, the UNLV School of Medicine can lead the public health community in embarking upon research-driven, culturally appropriate initiatives to improve quality across the entire continuum of breast cancer care, including expanding access to primary care, providing patient education, monitoring mammography screening by race/ethnicity, and increasing treatment according to guidelines for all patients.

About the Researchers

Dr. Paulo Pinheiro is an associate professor of epidemiology at the School of Community Health Sciences. His research focuses on cancer epidemiology, particularly the validity of epidemiological indicators for ethnic and racial minorities. Other interests include breast cancer survival disparities in Nevada, post delivery cancer in mothers, cancer in Asian subgroups, cancer follow-up methods in the U.S., childhood leukemia survival differentials, diabetes and colorectal cancer, among others. He is a state cancer registrar and works with multiple partnerships, workgroups and organizations in the fight against cancer at the local, state, national and international levels.
2- Recovering Latina breast cancer patients report big gaps in 'survivorship' care

CORVALLIS, Ore. - Breast cancer patients in one of the United States' largest and fastest-growing ethnic minority groups are likely to experience numerous gaps in care following their primary treatment, research from Oregon State University suggests.

Seventy-four Latina women who'd had breast cancer participated in the "survivorship" care research, recruited through support groups and health fairs. The subjects, ages 30 to 75, took part in semi-structured focus groups that used a question guide crafted by a task force of academic researchers and community partners such as the American Cancer Society. Approximately half of the women were low-income, uninsured or publicly insured.

"Results indicate numerous gaps and unmet needs in Latinas' survivorship care experiences, including problems with finances, continuity of care, unmet needs for information, and symptom management," said Carolyn Mendez-Luck, an assistant professor in OSU's College of Public Health and Human Sciences and one of the authors of the study.

The California Breast Cancer Research Program provided primary funding for the research. Results were recently published in Public Health Nursing.

Optimal survivorship care, according to the Institute of Medicine, includes the prevention of recurrence, new cancer and late effects of cancer treatment; the monitoring or surveillance for cancer and medical, mood and social issues; interventions for the effects of cancer and its treatment; and coordination among specialists and primary care providers to ensure all health needs are met.

"Many survivors experience persisting symptoms including fatigue, pain, depression and sleep disturbance, but until recent years, survivorship has been relatively neglected in education, clinical practice and research," Mendez-Luck said.

People of Mexican, Cuban, Puerto Rican, and Central and South American descent comprise 17.6 percent of the U.S. population, and about 10 percent of the women in the Hispanic/Latino population will develop breast cancer at some point in their lifetime.

Latina women are more likely to be diagnosed at later stages than non-Hispanic whites and also face linguistic and cultural barriers to diagnosis and treatment, including modesty; spiritual beliefs that cancer is God's punishment; de-prioritizing their own health care in favor of their roles as mother and wife; and passivity in interactions with health care providers out of respect for their authority.
In addition, there are often financial hurdles - more than 25 percent of Latina women live in poverty and lack health insurance. "Understanding the cultural context in which women receive care is important," Mendez-Luck said.

Women in the study sample expressed confusion and anxiety associated with a lack of information regarding future surveillance and treatment once primary care concluded. Many were unsure who was to be in charge of their treatment in the future, what the right schedule was for follow-up examinations, what self-care activities were recommended, and what to expect regarding their physical and psychological well-being.

"Among the women in our focus groups, survivorship care plans were scarce," Mendez-Luck said. "The vast majority of participants reported never having heard of them, or associated them with a completely different meaning - making a plan for how their families could carry on after they were gone."

The research also showed that depending on the person, "survivor" could have negative or positive connotations.

"Negative perceptions included feelings that being identified as a cancer survivor was depressing, victimizing and stigmatizing," Mendez-Luck said. "Also, that thinking about the cancer could potentially contribute to an increased likelihood of a recurrence, either by 'tempting fate' or from the stress brought on by negative thinking."

Positive views, the professor noted, included feeling special, strong, and blessed by God. Many survivors felt they had a special purpose for living, often including a mission to serve others.

"A survivorship care plan is meant to be this living document for you and your care providers, a document a patient can follow through this entire process of what's going on with the cancer and what she can do to stay healthy and reduce the chances that the cancer will return," Mendez-Luck said. "It makes the patient truly a partner in her own care with health providers. But that's not happening, clearly, at least not for these women. There's an enormous opportunity there for improvement."
CHAPTER THREE
Materials and Methods
3-Material and Methods

3-1 Study design :
A descriptive high school community based was conducted in Shandi. The study aimed to assess employed women regarding self breast cancer in high school in Shandi City in River Nile State 2016.

3-2 Study area :
Shandi city located in the River Nile State of Sudan at a height of 360 meters (1181 feet) above sea level, and away from the capital, Khartoum, around 150 kilometers (93 miles) to the north-east, and 45 kilometers (27.9 miles) from the site of ruins of the ancient Meroe. And is considered one of the most important cities in the north of Sudan in terms of its link between the north and north-east of the capital of Sudan in central Sudan, and proximity to urban centers in the north and north-eastern Sudan, and in terms of its history, commercial and political ancient and contemporary north of Sudan in terms of its link between the north and north-east of the capital of Sudan in central Sudan.

The city of Shendi has 8 secondary schools, four for boys and four for girls targeted in this research, a girls school.

1/ Secondary Girls School Shendi number of teachers 33

2/ School Shendi new high Girls number of teachers 28

3/ School Kamel Ibrahim Secondary Girls number of teachers 21

4/ School Abdulkarim Al-Said high school girls number of teachers 18

3-3 Study Population
The study was conducted on all (100) women working in school high for girls.

3-3-1 Inclusion criteria
The study included all (100) women working in school high for girls (total number).

3-3-2 Exclusion criteria
The women working in school high for girls in refused to participate in the study.
3-4 Sample size
All (100) women working in school high for girls at Shendy city

3-5 Data Collection Tools
The data for this research was collected using a designed structured questionnaire as tool for data collection. The tool was designed after careful review of the literature and the previous studies. After the tool was designed, a pilot study was done.

3-6 Data analysis:
The data were collected processed and transferred to computer coding. The descriptive analysis was adopted which include percentage means, frequently distribution inform of tables and figures and graphics illustration of frequently distribution was done using statistical package for social sciences (SPSS).

3-7 Ethical Consideration
The researcher took permission from Management of secondary education of the study with official letter from the Faculty of Applied Medical Sciences to directors of Management of secondary education, with the agreement of the target population, every individual observed once. Verbal consent from interviewed persons was also obtained after explaining the study and its objective to them. Confidentiality was given consideration and the information is used for the research purpose only.
CHAPTER FOUR

Results and Discussion
4-1 Results

Table (4-1): distribution of the study sample according to their Age and their level of education.

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>less than 20 years</td>
<td>0</td>
<td>.0%</td>
</tr>
<tr>
<td>from 21 to 25 years</td>
<td>4</td>
<td>4%</td>
</tr>
<tr>
<td>from 26 to 30 years</td>
<td>6</td>
<td>6%</td>
</tr>
<tr>
<td>greater than 30 years</td>
<td>90</td>
<td>90%</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Level of Education</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diploma</td>
<td>8</td>
<td>8%</td>
</tr>
<tr>
<td>Bachelor</td>
<td>70</td>
<td>70%</td>
</tr>
<tr>
<td>Master</td>
<td>20</td>
<td>20%</td>
</tr>
<tr>
<td>PHD</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table (4-1): shows that (90%) of study sample at age more than 30 years and (20%) of them at master level of education.
Table (4-2): distribution of the study sample according to their Marital status and Tribe.

No=100

<table>
<thead>
<tr>
<th>Marital status</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>18</td>
<td>18%</td>
</tr>
<tr>
<td>Married</td>
<td>72</td>
<td>72%</td>
</tr>
<tr>
<td>Divorce</td>
<td>4</td>
<td>4%</td>
</tr>
<tr>
<td>Widow</td>
<td>6</td>
<td>.6%</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tribe</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern</td>
<td>92</td>
<td>92%</td>
</tr>
<tr>
<td>Southern</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>Eastern</td>
<td>4</td>
<td>4%</td>
</tr>
<tr>
<td>Western</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table (4-2): shows that (72%) of the study sample were Married, and (92%) of them come from northern.
Table (4-3): distribution of the study sample according to their knowledge regarding definition and cases of the breast cancer.

<table>
<thead>
<tr>
<th>Items</th>
<th>Correct answer</th>
<th>Incorrect answer</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
<td>No</td>
</tr>
<tr>
<td><strong>Definition:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1- is the benign tumors in the breast.</td>
<td>0</td>
<td>0%</td>
<td>100</td>
</tr>
<tr>
<td>2- is a malignant tumor in the breast.</td>
<td>92</td>
<td>92%</td>
<td>8</td>
</tr>
<tr>
<td>3- is an abnormal increase of the breast.</td>
<td>8</td>
<td>8%</td>
<td>92</td>
</tr>
<tr>
<td><strong>Causes:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-Known.</td>
<td>24</td>
<td>24%</td>
<td>76</td>
</tr>
<tr>
<td>2- Unknown.</td>
<td>76</td>
<td>76%</td>
<td>24</td>
</tr>
</tbody>
</table>

Table (4-3): shows that most (92%) of the sample study as definition Breast censermalignant tumor in the breast and (76%) of them depend on the causes of breast cancer.
Table (4-4): distribution of the study sample according their knowledge regarding Factors affecting breast cancer and risk Factor that increase the possibility of the breast cancer.

No=100

<table>
<thead>
<tr>
<th>Factor</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genetics</td>
<td>28</td>
<td>28%</td>
</tr>
<tr>
<td>Hormones</td>
<td>18</td>
<td>18%</td>
</tr>
<tr>
<td>eating quality</td>
<td>6</td>
<td>.6%</td>
</tr>
<tr>
<td>Radiation</td>
<td>18</td>
<td>18%</td>
</tr>
<tr>
<td>Drugs</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>early menarche</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>delayed menopause</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>all of the above</td>
<td>30</td>
<td>30%</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Risk factor</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ageing</td>
<td>20</td>
<td>20%</td>
</tr>
<tr>
<td>pregnancy after thirty</td>
<td>12</td>
<td>12%</td>
</tr>
<tr>
<td>Obesity</td>
<td>6</td>
<td>6%</td>
</tr>
<tr>
<td>incidence of breast cancer in relatives</td>
<td>62</td>
<td>62%</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table (4-4): shows (28%) of the study sample with correct answers regarding Factors affecting breast cancer and (62%) of them resent corrector regarding of breast cancer in relative.
Table (4-5): distribution of the study sample according to their knowledge regarding signs and symptoms of the breast cancer.

No = 100

<table>
<thead>
<tr>
<th>Signs and symptoms</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>The presence of a lump in the breast</td>
<td>24</td>
<td>24%</td>
</tr>
<tr>
<td>discharge from the nipple pointed blood or pus</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>change color and breast size</td>
<td>2</td>
<td>.2%</td>
</tr>
<tr>
<td>swelling of the axillaries lymph nodes</td>
<td>4</td>
<td>4%</td>
</tr>
<tr>
<td>all of the above</td>
<td>68</td>
<td>68%</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table (4-5): shows (68%) of the study sample that signs and symptoms of the breast cancer all of the above.
Figure (4-1): distribution of the study sample according How to diagnostic breast cancer

Figure (4-1): show (52%) of study sample breast self-examination that How to diagnostic breast cancer.
Figure (4-2): distribution of the study sample according their definition of a breast self-examination.

Figure (4-2): show that definition of a breast self-examination (84%) set steps help to early detection breast cancer.
Figure (4-3): distribution of the study sample according to their source of information for the breast self-examination.

Figure (4-3): shows that source of information for the breast self-examination (34%) is TV.
Table (4-6): distribution of the study sample according to their knowledge regarding recognize during doing breast self-examination and the purpose of the breast self-examination is to search for tumors and do you do a breast examination for yourself before.

No=100

<table>
<thead>
<tr>
<th>During self-examination</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>changing shape of the breast</td>
<td>8</td>
<td>8%</td>
</tr>
<tr>
<td>presence of tumors</td>
<td>8</td>
<td>8%</td>
</tr>
<tr>
<td>the presence of cysts</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>anything abnormal</td>
<td>6</td>
<td>6%</td>
</tr>
<tr>
<td>All above</td>
<td>78</td>
<td>78%</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>purpous</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>True</td>
<td>80</td>
<td>80%</td>
</tr>
<tr>
<td>Wrong</td>
<td>20</td>
<td>20%</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Do breast exam</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>50</td>
<td>50%</td>
</tr>
<tr>
<td>No</td>
<td>50</td>
<td>50%</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table (4-6): shows (78%) of the study sample that recognize during doing breast self-examination, all above, and (80%) of them purpose of the breast self-examination is to search of tumors true. And (50%) of them do you do a breast examination for yourself before yes.
Table (4-7): distribution of the study sample according to their knowledge regarding symptoms that require immediate notification and are you ready to do breast self-examination on regular basis.

No=100

<table>
<thead>
<tr>
<th>immediate notification</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>changing shape of the breast</td>
<td>4</td>
<td>4%</td>
</tr>
<tr>
<td>presence of tumors</td>
<td>18</td>
<td>18%</td>
</tr>
<tr>
<td>the presence of abnormal pain</td>
<td>6</td>
<td>6%</td>
</tr>
<tr>
<td>presence of secretions blood or puss</td>
<td>6</td>
<td>6%</td>
</tr>
<tr>
<td>All above</td>
<td>66</td>
<td>66%</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>are you ready</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>68</td>
<td>68%</td>
</tr>
<tr>
<td>No</td>
<td>32</td>
<td>32%</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table (4-7): shows (66%) of the study sample that symptoms that require immediate notification. All above symptoms. And (68%) of them ready to do breast self-examination on regular basis.
Table (4-8): distribution of the study sample according to their knowledge regarding Early detection of breast cancer ways. And is breast cancer limited to females. No=100

<table>
<thead>
<tr>
<th>Early detection</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>breast self-examination</td>
<td>72</td>
<td>72%</td>
</tr>
<tr>
<td>screening mammography</td>
<td>4</td>
<td>4%</td>
</tr>
<tr>
<td>ultra sound</td>
<td>16</td>
<td>16%</td>
</tr>
<tr>
<td>take biopsy breast</td>
<td>8</td>
<td>8%</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>limited to females</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>38</td>
<td>38%</td>
</tr>
<tr>
<td>No</td>
<td>62</td>
<td>62%</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table (4-8): shows (72%) of the study sample that Early detection of breast cancer ways, (72%) of them breast self-examination and (62%) of them no breast cancer limited to females.
**Table (4-9):** distribution of the study sample according to their knowledge regarding the age at which women should begin the doing of a breast self-examination and the ways of the breast self-examination. 

No=100

<table>
<thead>
<tr>
<th>Age begin exam</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>from puberty to 20 years</td>
<td>38</td>
<td>38%</td>
</tr>
<tr>
<td>21 to 25 years</td>
<td>10</td>
<td>10%</td>
</tr>
<tr>
<td>26 to 30 years</td>
<td>14</td>
<td>14%</td>
</tr>
<tr>
<td>over the past 30 years</td>
<td>38</td>
<td>38%</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ways of the breast</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Look</td>
<td>24</td>
<td>24%</td>
</tr>
<tr>
<td>Touch</td>
<td>8</td>
<td>8%</td>
</tr>
<tr>
<td>all above</td>
<td>68</td>
<td>68%</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Table (4-9):** shows (38%) of the study sample that the age at which women should begin the doing of a breast self-examination from puberty to 20 years and (68%) of them all ways of the breast self-examination.
**Table (4-10)**: distribution of the study sample according to their knowledge regarding the Steps of the breast self-examination and the best time to do the breast self-examination.

No=100

<table>
<thead>
<tr>
<th>the Steps</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>chest area to look in the mirror</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>rise your arms up and look that there was a change</td>
<td>8</td>
<td>8%</td>
</tr>
<tr>
<td>to make sure there is no blood or secretions puss</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>examine of the breast in a lie by pressing a light circular motion</td>
<td>6</td>
<td>6%</td>
</tr>
<tr>
<td>examine to breast in a standing position and sit</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>All above</td>
<td>80</td>
<td>80%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>best time</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 days before menstruation</td>
<td>20</td>
<td>20%</td>
</tr>
<tr>
<td>during menstruation</td>
<td>6</td>
<td>6%</td>
</tr>
<tr>
<td>5 days after menstruation</td>
<td>74</td>
<td>74%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

**Table (4-10)**: shows (80%) of the study sample that the Steps of the breast self-examination All steps above, and (74%) of them the best time to do the breast self-examination 5 days after menstruation.
Table (4-11): distribution of the study sample according their knowledge regarding Most of the tumors that were discovered in the breast are cancerous and genetic factors play a role in increasing the proportion of breast cancer, and must likely to develop breast cancer age.

No=100

<table>
<thead>
<tr>
<th>Most of the tumors</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>18</td>
<td>18%</td>
</tr>
<tr>
<td>No</td>
<td>82</td>
<td>82%</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Must likely to develop</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>80</td>
<td>80%</td>
</tr>
<tr>
<td>No</td>
<td>20</td>
<td>20%</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age range</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>from puberty to 25 years</td>
<td>12</td>
<td>12%</td>
</tr>
<tr>
<td>25 to 35 years</td>
<td>20</td>
<td>20%</td>
</tr>
<tr>
<td>36 to 50 years</td>
<td>56</td>
<td>56%</td>
</tr>
<tr>
<td>above 50 years</td>
<td>12</td>
<td>12%</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table (4-11): shows (82%) of the study sample that Most of the tumors that were discovered in the breast are cancerous No, and (80%) of them genetic factors play a role in increasing the proportion of breast cancer yes, and (56%) of them must likely to develop breast cancer age 36 to 50 years.
Table (4-12): distribution of the study sample according to women’s knowledge regarding at risk for developing breast cancer

No=100

<table>
<thead>
<tr>
<th>Items</th>
<th>Correct answer</th>
<th>Incorrect answer</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>woman’s knowledge regarding at risk for developing breast cancer.</td>
<td>No</td>
<td>%</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>32</td>
<td>32%</td>
<td>68</td>
</tr>
</tbody>
</table>

Table (4-12): shows (42%) of the study sample that the most likely to develop breast cancer among females. Do not know, and (60%) of them women who did not give birth is more risk to breast cancer yes.
Table (4-13) : distribution of the study sample according to their knowledge regarding if you were invited to share in the education about breast self-examination, and did you receive an education program for breast self-examination before, and receive an educational program if how long time.

No=100

<table>
<thead>
<tr>
<th>If you were invited</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ready</td>
<td>60</td>
<td>60%</td>
</tr>
<tr>
<td>I'm not ready</td>
<td>6</td>
<td>6%</td>
</tr>
<tr>
<td>Sometimes</td>
<td>14</td>
<td>14%</td>
</tr>
<tr>
<td>Do not know</td>
<td>20</td>
<td>20%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>did you receive</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>28</td>
<td>28%</td>
</tr>
<tr>
<td>No</td>
<td>72</td>
<td>72%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>receive an educational program</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 6 months</td>
<td>6</td>
<td>19.6%</td>
</tr>
<tr>
<td>more than 6 months</td>
<td>22</td>
<td>80.4%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>28</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Table (4-13): shows (60%) of the study sample that if you were invited to share in the education about breast self-examination Ready, and (72%) of them did you receive an education program for breast self-examination before no, and (80.4%) of them receive an educational program if how long time more than 6 months.
4-2 Discussion

The study revealed that ½ (50%) of the study sample do a breast examination for yourself before. This seminar to what had been conducted by Susan G.Komen. This study was conducted which is about the education program for women working in the field of secondary education in Shendi, especially the teachers were age most above the 30 by 90% and most of their education degree Bachelor 70% and tribal north by 92%. The questionnaire included two-fold incision is talking about breast cancer and the other prong is talking about self-examination. When asked about the definition of breast cancer was 92% contain malignant tumor in the breast and the causes of breast cancer are they known or unknown to have been 76% for unknown reasons and factor that affect breast cancer were answer genetics by 28% and hormones by 18% as well as radiation in the same proportion of 18% and 6% food and early menstruation and late menopause percentage zero % and all previous options the highest percentage of 30%. And the factors that likelihood of developing breast cancer, the relatives of breast cancer. When asked about the symptoms and signs of breast cancer, the percentage were varying, where they said the percentage of a lump in the breast 24% and swelling of the lymph nodes 4% and discharge of blood or pus from the nipple 2%, as well as change the color and size of the breast 2% and all these symptoms the previous combined higher 68%. When asked about how the disease is diagnosed the answer 52% of them that the diagnosed is made by breast self-examination, and

When asked about what breast self-examination was the highest 84% of that total steps to help early detection of breast cancer. And the source of their information was answered from all media are the highest 46% when asked about what can be recognized when doing self-examination of the breasts were the answers that change the shape of the breast 8% and the presence of tumors 8% and anything unnatural 6% and the presence of PCA zero% and all previous options combined the highest percentage of 78%. When asked about the purpose of self-examination is to look for tumors, 80% answered the validity of this statement. The study revealed that 50% of respondents have downloaded the work of self-examination of the breast, and 50% did not do self-examination.
When asked what are the symptoms that require immediate notification was their answer that the 18% when there are tumblers and 6% at the presence of secretions and blood the same percentage of 6% when there is pain is normal and 4% when changing shape of the breast and 66% for the all previous options combined. Do they have stability for the work of self-examination on a regular basis 68% of them said yes. And early detection of breast cancer was 72% roads through breastSelf-examination. When asked are breast cancer is limited to females only 68% were no answered. When asked about the age at which the age start self-examination equal to two answers in the 38% who are of the age of majority to 20 years and higher than 30 years. And asked about what self-examination methods of answers looked 24%, and 8% tough and 68% all previous options combined. When asked about steps to self-examination were the answers to the following 2% chest area to look in the mirror, and 8% rise your arms up and look that there was a change and 2% to make sure there is no blood or secretions pus and 6% examine of the breast in a lie by pressing a light circular motion and 2% examine to breast in a standing position and sit and 80% all previous options combined. When asked about the beast time to do self-examination of the breast 74% to 5 days after menstruation are most tumors that are discovered in cancerous breast 82% answered no. And relationship factor of breast cancer do you play a role in the increase in the incidence of breast cancer, 80% answered yes. And more age-risk for breast cancer, 56% for the 36-50 age category among most women are likely to develop breast cancer 32% of unmarried women and 26% of married and 42% answered, I do not know and relationship-bearing breast cancer 60% answered that childlessness it makes women are more Vulnerable. And 60% are willing to participate if invited to spread and guide the community to prevent breast cancer and learn how to be a self-examination of the breast. Unfortunately, 72% of them an education program for self-examination of the breast did not have before and who receive an educational program 28% and were 94% answered that the program was more than 6 months.
The summa

There is weakness in the information about breast cancer and how to prevent them and most of the study sample did not know how to breast self-examination conducted
Chapter Five

Conclusion and Recommendations
5-1 Conclusion

The study concluded that:
Employ Women’ knowledge regarding breast cancer were inadequate such us definition, sign and symptom, causes and how to detection by breast self-examination
5-2 Recommendations

Based on the conclusion of this study it recommended that:

Periodic training program for women about breast cancer must be done and log book must be design and available for employ women in their work
References


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43. Jump up^ Russo J, Russo IH (1980). "Susceptibility of the mammary gland to carcinogenesis. II. Pregnancy interruption as a risk factor in tumor incidence". Am J Pathol. 100 (2): 505–506. PMC 1903536. PMID 6773421. In contrast, abortion is associated with increased risk of carcinomas of the breast. The explanation for these epidemiologic findings is not known, but the parallelism between the DMBA-induced rat mammary carcinoma model and the human situation is striking. ... Abortion would interrupt this process, leaving in the gland undifferentiated structures like those observed in the rat mammary gland, which could render the gland again susceptible to carcinogenesis.


47. Jump up^ BBC report Weight link to breast cancer risk


Appendices

Appendix 1

استبيان حول الفحص الذاتي للثدي:

1. العمر:
   أ / أقل من 20 عاما [ ] / من 21 إلى 25 سنوات [ ]
   ج / 26-30 سنة [ ] / أكبر من 30 سنة [ ]
2. المدرسة: ...........................................
3. مستوى التعليم:
   أ / دبلوم [ ] / البكالوريوس [ ] / ج / ماجستير [ ] / د / دكتوراه [ ]
4. الجراحة الاجتماعية:
   أ / عزب [ ] / متزوجة [ ]
   ج / مطلقة [ ] / أرملة [ ]
5. ماذا كانت الإجابة متزوجة [ ]
6. أكم عدد مرات الحمل [ ] / ب / أكم عدد مرات الانجاب [ ]
7. ج / مرضعة [ ] / غير مرضعة [ ]
8. قبيلة (الأصول):
   أ / الشمال [ ] / الجنوب [ ]
   ج / الشرق [ ] / الغرب [ ]
8. ما هو سرطان الثدي؟ [ ]
9. أ / هو أورام حميدة في الثدي [ ] / ب / هو ورم خبيث في الثدي [ ]
10. ج / هو زيادة غير طبيعية في الثدي [ ]
11. أسباب سرطان الثدي:
    أ / غير معرفة [ ] / غير معرفة [ ]
    ج / مرضية [ ] [ ]
12. ج / تناول نووية [ ] / د / إشعاع [ ]
13. ز / أتى انتقال المرض [ ] / كل ما سبق [ ]
14. العوامل التي تؤثر على سرطان الثدي: [ ]
15. ج / المحمل بعد ثلاثين [ ] / الشيوخة [ ]
16. السمنة [ ] / إصابة بسرطان الثدي في الأقارب [ ]
17. علامات وأعراض سرطان الثدي:
    أ / وجود كتلة في الثدي [ ] / ب / إفرازات من الحلمة وأشار الدم أو الفيح [ ]
    ج / تغيري لون وحجم الثدي [ ] / د / تورم في الغدد الليمفاوية بالابط [ ]
18. ه / كل ما سبق [ ]
19. كيف يتم تشخيصه؟ [ ]
20. أ / الفحص الذاتي للثدي [ ] / ب / فحص تصوير الثدي [ ]
21. ج / موجات صوتية [ ] / د / أخذ خزعة الثدي [ ]
22. ما هو فحص الثدي الذاتي؟ [ ]
23. ج / مجموعة خطوات تساعد على الكشف المبكر عن سرطان الثدي [ ]
24. أ / مصحر معلومات عن الفحص الذاتي؟ [ ]
25. ب / التلفزيون [ ]
26. ج / من خلال الكلية [ ] / د / الرؤية الذاتي [ ]
27. ه / كل ما ذكر أعلاه [ ]
15. ما يمكن الكشف على الفحص الذاتي على اطلاع؟
أ) يغير شكل التذي [ج / وجوه أورام [ه / كل ما ذكر أعلاه [ج / وجود الخراجات [د / أي شيء غير طبيعي [ه / كل ما ذكر أعلاه [ج / الفحص من الفحص الذاتي لسرطان الثدي هو البحث عن الأورام؟
أ) صحيح [ج / خطاً [ب / لا
16. هل قمني بإجراء فحص ذاتي للثدي لنفسك من قبل؟
أ) من البرمجة التي تتطلب الإحترام الفوري؟
أ) يغير شكل التذي [ج / وجود أورام [د / وجود إفرازات الدم [ه / كل ما ذكر أعلاه [ج / وجود الدم غير طبيعي [د / ج / وجود إفرازات الدم [ه / كل ما ذكر أعلاه [ج / الفحص الذاتي للثدي يقتصر على الإنسان؟
أ) من البرمجة التي يتطلب الإحترام الفوري [ج / خطاً [ب / لا
17. ما هي الأعراض التي تتطلب الإحترام الفوري؟
أ) يغير شكل التذي [ج / وجوه أورام [د / وجود إفرازات الدم [ه / كل ما ذكر أعلاه [ج / وجود الدم غير طبيعي [د / ج / وجود إفرازات الدم [ه / كل ما ذكر أعلاه [ج / الفحص الذاتي للثدي يقتصر على الإنسان؟
أ) من البرمجة التي يتطلب الإحترام الفوري [ج / خطاً [ب / لا
18. هل أنت مستعد للقيام بالفحص الذاتي للثدي على أساس منظم؟
أ) يغير شكل التذي [ج / وجوه أورام [د / وجود إفرازات الدم [ه / كل ما ذكر أعلاه [ج / وجود الدم غير طبيعي [د / ج / وجود إفرازات الدم [ه / كل ما ذكر أعلاه [ج / الفحص الذاتي للثدي يقتصر على الإنسان؟
أ) من البرمجة التي يتطلب الإحترام الفوري [ج / خطاً [ب / لا
19. الكشف المبكر عن سرطان الثدي الطريق؟
أ) يغير شكل التذي [ج / وجوه أورام [ج / الموجات الصوتية [د / أخذ خزعة من الثدي [ه / كل ما ذكر أعلاه [ج / الفحص الذاتي للثدي يقتصر على الإنسان؟
أ) من البرمجة التي يتطلب الإحترام الفوري [ج / خطاً [ب / لا
20. كيف تعرف على الموجات الصوتية [ج / الفحص من الفحص الذاتي للثدي هو؟
أ) من سس البلوغ حتى 20 سنة [ج / 21 إلى 25 سنة [د / من 30 سنة [أ / على من 30 عاماً [ه / كل ما ذكر أعلاه [ج / الفحص الذاتي للثدي يقتصر على الإنسان؟
أ) من البرمجة التي يتطلب الإحترام الفوري [ج / خطاً [ب / لا
21. ما هو طرق الفحص الذاتي للثدي؟
أ) يغير شكل التذي [ج / وجوه أورام [ج / موجات الصوتية [د / أخذ خزعة من الثدي [ه / كل ما ذكر أعلاه [ج / الفحص الذاتي للثدي يقتصر على الإنسان؟
أ) من البرمجة التي يتطلب الإحترام الفوري [ج / خطاً [ب / لا
22. الفحص الذاتي في وضع الطريقة على طريقة دورية خفيفة [ج / كل ما سبق [د / حجم صغير [ه / كل ما سبق [ج / الفحص الذاتي للثدي يقتصر على الإنسان؟
أ) من البرمجة التي يتطلب الإحترام الفوري [ج / خطاً [ب / لا
23. الفحص الذاتي في وضع الطريقة على طريقة دورية خفيفة [ج / كل ما سبق [د / حجم صغير [ه / كل ما سبق [ج / الفحص الذاتي للثدي يقتصر على الإنسان؟
أ) من البرمجة التي يتطلب الإحترام الفوري [ج / خطاً [ب / لا
24. الفحص الذاتي في وضع الطريقة على طريقة دورية خفيفة [ج / كل ما سبق [د / حجم صغير [ه / كل ما سبق [ج / الفحص الذاتي للثدي يقتصر على الإنسان؟
أ) من البرمجة التي يتطلب الإحترام الفوري [ج / خطاً [ب / لا
25. الفحص الذاتي في وضع الطريقة على طريقة دورية خفيفة [ج / كل ما سبق [د / حجم صغير [ه / كل ما سبق [ج / الفحص الذاتي للثدي يقتصر على الإنسان؟
أ) من البرمجة التي يتطلب الإحترام الفوري [ج / خطاً [ب / لا
26. الفحص الذاتي في وضع الطريقة على طريقة دورية خفيفة [ج / كل ما سبق [د / حجم صغير [ه / كل ما سبق [ج / الفحص الذاتي للثدي يقتصر على الإنسان؟
أ) من البرمجة التي يتطلب الإحترام الفوري [ج / خطاً [ب / لا
27. الفحص الذاتي في وضع الطريقة على طريقة دورية خفيفة [ج / كل ما سبق [د / حجم صغير [ه / كل ما سبق [ج / الفحص الذاتي للثدي يقتصر على الإنسان؟
أ) من البرمجة التي يتطلب الإحترام الفوري [ج / خطاً [ب / لا
28. الفحص الذاتي في وضع الطريقة على طريقة دورية خفيفة [ج / كل ما سبق [د / حجم صغير [ه / كل ما سبق [ج / الفحص الذاتي للثدي يقتصر على الإنسان؟
أ) من البرمجة التي يتطلب الإحترام الفوري [ج / خطاً [ب / لا
29. الفحص الذاتي في وضع الطريقة على طريقة دورية خفيفة [ج / كل ما سبق [د / حجم صغير [ه / كل ما سبق [ج / الفحص الذاتي للثدي يقتصر على الإنسان؟
أ) من البرمجة التي يتطلب الإحترام الفوري [ج / خطاً [ب / لا
30. الفحص الذاتي في وضع الطريقة على طريقة دورية خفيفة [ج / كل ما سبق [د / حجم صغير [ه / كل ما سبق [ج / الفحص الذاتي للثدي يقتصر على الإنسان؟
أ) من البرمجة التي يتطلب الإحترام الفوري [ج / خطاً [ب / لا
31. الفحص الذاتي في وضع الطريقة على طريقة دورية خفيفة [ج / كل ما سبق [د / حجم صغير [ه / كل ما سبق [ج / الفحص الذاتي للثدي يقتصر على الإنسان؟
أ) من البرمجة التي يتطلب الإحترام الفوري [ج / خطاً [ب / لا
32. الفحص الذاتي في وضع الطريقة على طريقة دورية خفيفة [ج / كل ما سبق [د / حجم صغير [ه / كل ما سبق [ج / الفحص الذاتي للثدي يقتصر على الإنسان؟
أ) من البرمجة التي يتطلب الإحترام الفوري [ج / خطاً [ب / لا
33. متى كان الوقت؟ [ ] أ / أقل من 6 أشهر [ ] ب / أكثر من 6 أشهر
Appendix 2

Pictures:

Signs and symptoms
Breast cancer
Breast cancer showing an inverted nipple, lump and skin dimpling.

2-4 Path physiology

Main article: Carcinogenesis
**Diagnosis**

Early signs of possible breast cancer

- **Excised human breast tissue**, showing an irregular, dense, white stellate area of cancer 2 cm in diameter, within yellow fatty tissue.

- **High-grade invasive ductal carcinoma**, with minimal tubule formation, marked pleomorphism, and prominent mitoses, 40x field.

- **Micrograph** showing a lymph node invaded by ductal breast carcinoma, with extension of the tumour beyond the lymph node.

- **Neuropilin-2 expression** in normal breast and breast carcinoma tissue.
F-18 FDG PET/CT: A breast cancer metastasis to the right scapula

Needle breast biopsy.

Elastography shows stiff cancer tissue on ultrasound imaging.

Ultrasound image shows irregular shaped mass of breast cancer.

**Classification** *Main article*

*Breast cancer classification*

Stage T1 breast cancer

Stage T2 breast cancer
• Stage T3 breast cancer

• Stage 1A breast cancer

• Stage 1B breast cancer

• Stage 2A breast cancer

• Stage 2A breast cancer

• Stage 2B breast cancer

• Stage 2B breast cancer
- **Stage 2B breast cancer**

- **Stage 3A breast cancer**

- **Stage 3A breast cancer**

- **Stage 3A breast cancer**

- **Stage 3B breast cancer**

- **Stage 3B breast cancer**

- **Stage 4 breast cancer**
2-7 Screening

Main article: Breast cancer screening

A mobile breast cancer screening unit in New Zealand

Surgery

Chest after right breast mastectomy

2-8-3 Radiation

Internal radiotherapy for breast cancer

2-9 Prognosis
Breasts after double mastectomy followed by nipple-sparing reconstruction with implants

An example of an advanced recurrent breast cancer with an ulcerating axillary mass

2-10 Epidemiology

*Main article: Epidemiology of breast cancer*

2-11 History

Breast cancer surgery in 18th century
2-12-1 Pink ribbon

Main article: Pink ribbon

The pink ribbon is a symbol to show support for breast cancer awareness