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**Master's Thesis**

**BREAST CANCER: WHAT YOU NEED TO KNOW**

**Master of Science in Nursing**

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## ABSTRACT

### STUDY OBJECTIVES

1. To explore the trends in breast cancer and determine the specifics of breast cancer spreading in various populations.
2. To determine risk factors for breast cancer in woman.
3. To provide an assessment of the lifestyle changes that may be valued in decreasing of the breast cancer development.

### THE OBJECT OF THE STUDY

Organization of nursing care for the patients with breast cancer medico-social institutions and in the home.

### THE SUBJECT OF THE STUDY

The factors that may be valued in decreasing/ increasing risk of the breast cancer.

### METHODS OF STUDY

- Sociological method,
- Statistical method

### CONCLUSIONS

This study has explored the basic concepts of etiology and pathogenesis of breast cancer and it spreading in various populations. The research has determined risk factors that may lead to the breast cancer development, as well as factors that may be valued in decreasing/ increasing risk of the breast cancer.

Breast cancer: Most of what you need to know.

Unfortunately, almost every one of us know someone who was directly or indirectly affected by Breast Cancer.

Do you know that there are just 6 things you can do to lower the risk of Breast Cancer by 30%?

- Avoid smoking
- Drink very little alcohol (red wine only)
- Maintain a healthy body weight
- Skip the hormone replacement therapy
- Exercise daily for 30 minutes
- Eat mostly plants

Breast cancer is the most common cancer in women in the United States, except for skin cancer. It is about 30% (or 1 in 3) of all new female cancers each year.

The American Cancer Society's estimates for breast cancer in the United States for 2022 are:

- About 287,850 new cases of invasive breast cancer will be diagnosed in women.
- About 51,400 new cases of ductal carcinoma (noninvasive breast cancer) in situ (DCIS) will be diagnosed.
- **About 43,250 women will die from breast cancer.**

Breast cancer mainly occurs in middle-aged and older women. The median age at

the time of breast cancer diagnosis is 62. This means half of the women who developed breast cancer are 62 years of age or younger when they are diagnosed. A very small number of women diagnosed with breast cancer are younger than 45.

When looking at Lifetime chance of getting breast cancer we can see that overall, the average risk of a woman in the United States developing breast cancer sometime in her life is about 13%. This means there is a 1 in 8 chance she will develop breast cancer. This also means there is a 7 in 8 chance she will never have the disease.

- **Trends in breast cancer incidence**

In recent years, incidence rates have increased by 0.5% per year.

- **Trends in breast cancer deaths**

Breast cancer is the second leading cause of cancer death in women. (Only lung cancer kills more women each year.) The chance that a woman will die from breast cancer is

about 1 in 39 (about 2.6%).

Since 2007, breast cancer death rates have been steady in women younger than 50 but have continued to decrease in older women. From 2013 to 2018, the death rate went down by 1% per year.

These decreases are believed to be the result of finding breast cancer earlier through screening and increased awareness, as well as better treatments.

- **Differences by race and ethnicity**

Some variations in breast cancer can be seen between racial and ethnic groups. For example,

- ✓ The median age of diagnosis is slightly younger for Black women (60

- years old) compared to white women 63 years old).
- ✓ Black women have the highest death rate from breast cancer. This is thought to be partially because about 1 in 5 Black women with breast cancer have triple-negative breast cancer more than any other racial/ethnic group.
  - ✓ Black women have a higher chance of developing breast cancer before the age of 40 than white women.
  - ✓ At every age, Black women are more likely to die from breast cancer than any other race or ethnic group.
  - ✓ White and Asian/Pacific Islander women are more likely to be diagnosed with localized breast cancer than Black, Hispanic, and American Indian/Alaska Native women.
  - ✓ Asian/Pacific Islanders have the lowest death rate from breast cancer.
  - ✓ American Indian/Alaska Natives have the lowest rates of developing breast cancer.

- **Breast cancer survivors**

Currently there are more than 3.8 million breast cancer survivors in the United States.

This includes women still being treated and those who have completed treatment.

**Risk factors for Breast Cancer in women:**

- *All women are at risk!!*
- Median age is 61

- Early menarche; late menopause
- Not breast feeding, or had first child after 30 y/o, or did not have children
- Hormone therapy
- Family history: risk is double if mom, sister, daughter (3x if 2 relatives; 4x if 3 or more relatives)

**Let's talk about all the risk factors more in dept.**

**• Overweight & obesity**

Studies have shown that women's breast cancer risk is increased by obesity (being extremely overweight) after

menopause. Women who are overweight with BMI between 25-29.5 are 1.5 times at higher risk of developing breast cancer. When diagnosed with Obesity where BMI higher than 30, risk of breast cancer is 2 times higher.

Women who struggle with weight has higher estrogen levels, which called Estrogen dominance, where there are higher circulating estrogen levels which is precursor for breast cancer. Then there is a fact that our own body fat is the largest source of estrogen, especially in postmenopausal women.

**• Heredity & Genetics**

Only 5% of cancers are attributable to the BRCA genes. They affect less than 1% in general population and 2% of Ashkenazi Jews, where if the woman is a gene carrier, she would have 50-60% higher risk of breast cancer. Other mutations may increase risk. Smoking, Radiation exposure, stress (increase cortisol and insulin levels), and pesticides can increase risk factors.

- **Chemicals from Plastic Bottles (carcinogens)**

All plastics may leach chemicals – scratched or heated. One of the chemicals is BPA (bisphenol A) weak synthetic estrogen also known as Hormone disruptor, which induces breast cancer development & growth. If one wants to use bottles and contains, use glass, steel ceramic bottles. Use BPA free bottles, including baby bottles and don't cook in plastic containers or use roasting bags.

- **Food & Lifestyle**

Heterocyclic Amines (a.k.a grilled meats), those are toxic chemical that form when meats are cooked at high temperatures, whether its chicken, beef or pork. Long Island Breast Cancer Study 2007 shows that there is 47% higher lifetime risk of developing breast cancer in women eating grilled, barbequed or smoked meats. Chemicals formed by cooking at high temps: damage DNA, initiate & promote CA growth. As per Iowa Women's Health Study if women consume meats that are "well done", there risk factor increases by 5!!

- **Importance of Sleep**

Let's Talk Melatonin! Melatonin is a hormone that inhibits tumor growth and development. It normally peaks from 2 am till 5 am to regulate sleep. Also, our body restores cells and healing process happens when we sleep.

Studies show that night workers have increased breast cancer risk by 40%, because melatonin secretion is interrupted.

- **Let's Talk Exercise!**

There was a Nurse Health Study done that took 3,000 nurses with Stage I-III breast cancer who exercised regularly. It showed that women who exercised 3-5 hours/week had lowest risk of death from breast cancer. Those women who exercised more then 5hours a week had similar risk. It goes to show you that

you don't have to do crazy exercise to get positive benefits. Exercise is good for toning, for busting the immune system and for improving blood flow, lowering the risk of developing breast cancer by 40%.

- **Let's Talk Diet!**

What should We Be Eating? Superior nutrition can decrease/reduce risk of breast cancer.

Super Foods like: Legumes, beans, seeds, whole grains, nuts, fruits, berries, vegetables are all anti-cancer.

“Health is a complicated issue. All the causes of cancer and other diseases are not presently known. A variety of external factors interact with genetics... Nevertheless, the preponderance of evidence demonstrates that superior nutrition can almost always

overwhelm a family history of cancer. Most diseases are still avoidable.”

Joel Furhman, MD: “Eat to Live & Disease Proof Your Child”

- **How Low-Fat Meals affect Breast Cancer.**

There was a study done where 2,437 postmenopausal women were randomized by eating foods with 40% fat versus low fat food at 20%. Women who consumed low fat diet in this study, had 24% decrease in breast cancer recurring at 5 years. And if breast cancers were not estrogen receptive negative, the benefit was even greater at 42%.

- **Eat more Fruits and Vegetables.**

This study looked at 1,500 women who consumed five or more servings of fruits & vegetables a day and walked 30 minutes daily six times a week had a significant survival

advantage: half the risk of dying of cancer 2 years post diagnosis!!



- **Let's Talk Animal Products!**

There is a strong association between animal foods and cancer, where blood cholesterol is the strongest predictor of cancer risk. As cholesterol levels decreased, cancers of the liver, rectum, colon, lung, BREAST, stomach, esophagus, brain decreased dramatically!

- **How Obesity effects Breast Cancer**

Women who are overweight or obese have higher levels of insulin in their bodies, which leads to diabetes increasing their risk of developing breast cancer by 16%. Also, diabetic and obese women have higher recurrence and higher death rate. For every 11 pounds of weight gained in adulthood increases the risk for breast cancer by 11%.

- **Let's Talk Soy!**

There are a lot of misconception about soy. People get concerned about soy in relations to breast cancer because of the phytoestrogens the natural hormone in soy. These phytoestrogens also called isoflavones. So, people think that because of that natural hormone that there is estrogen-like effects and potential interaction with Tamoxifen has led to concern about soy and breast cancer.

Shanghai Breast Cancer Survival did the study to prove that eating soy does not cause breast cancer.

They followed 5,042 Asian women all with breast cancer, ranging from 20 to 75 years of age for 5 years, who ate soy products. What they have found that women who consumed soy had significantly decreased risk of death & a lower recurrence of breast cancer. Regardless if their cancer receptors are positive or negative or if these women used Tamoxifen or not.

Then there was a study done in June on 2017, which was published in Cancer

Journal, were 6,235 *American women* with breast cancer were followed for 10 years. 17% were Hispanic women; 12% black; 11% Asian (with lower soy intake than Asian countries)

What they found is that those women who have at least 25% of soy consumption were 21% less likely to die of any cause compared to those eating least soy.

Women who consume soy live longer and have lower risk of recurrence. Drinking 1 cup soymilk/day decreased breast cancer risk by 25% regardless of the age or receptor status.

- **Let's Talk Alcohol!**

In 2010 the World Health Organization classified alcohol as a definitive breast carcinogen. Regarding breast cancer, no amount of alcohol is safe due to acetaldehyde, a toxic breakdown of alcohol.

As per Harvard Nurses' Health Study: Even 1 drink per day will have small increase in risk of developing breast cancer.

Red wine is the only alcoholic drink that had no reports of increasing that risk due to compounds that found in grape skins which suppresses estrogen synthase used by cancer to create estrogen.

### **Risk Factors for Breast Cancer in Men**

A risk factor is anything that affects your chance of getting a disease, such as breast cancer.

But having a risk factor, or even many, does not mean that you are sure to get the disease. Some men with one or

more breast cancer risk factors never develop the disease, while most men with breast cancer have no apparent

risk factors.

The causes of breast cancer in men is still unclear, but researchers have found several factors that may increase the risk of getting it. As with female breast cancer, many of these factors are related to your body's sex hormone levels.

- **Aging:**

Aging is an important risk factor for the development of breast cancer in men. The risk of breast cancer goes up as a man ages. On average, men with breast cancer are about 72 years old when they are diagnosed.

- **Family history of breast cancer**

Breast cancer risk is increased if other members of the family (blood relatives) have had breast cancer. About 1 out of 5 men with breast cancer have a close relative, male or female, with the disease.

- **Inherited gene mutations**

Men with a mutation (defect) in the BRCA2 gene have an increased risk of breast cancer, with a lifetime risk of about 6 in 100. BRCA1 mutations can also cause breast cancer in men, but the risk is lower, about 1 in 100.

Although mutations in these genes most often are found in members of families with many cases of breast and/or ovarian cancer, they have also been found in men with breast cancer who did not have a strong family history.

Men with Klinefelter syndrome also have small testicles and are often infertile

because they are unable to produce functioning sperm cells. Compared with other men, they have lower levels of androgens (male hormones) and more estrogens (female hormones). For this reason, they often develop gynecomastia (benign male breast growth).

Men with Klinefelter syndrome are more likely to get breast cancer than other men. Having this condition can increase the risk anywhere between 20 - 60 times the risk of a man in the general population

- **Radiation exposure**

A man whose chest area has been treated with radiation (such as for the treatment of a cancer in the chest, like lymphoma) has an increased risk of developing breast cancer.

- **Alcohol**

Heavy drinking (of alcoholic beverages) increases the risk of breast cancer in men. This may be because of its effects on the liver (see next paragraph).

- **Liver disease**

The liver plays an important role in balancing the levels of sex hormones. In cases of severe liver disease, such as cirrhosis, the liver is not working well, and the hormone levels are uneven, causing lower levels of androgens and higher levels of estrogen. Men with liver disease can also have a higher chance of developing benign male breast growth (gynecomastia) and have a higher risk of developing breast cancer.

- **Estrogen treatment**

Estrogen-related drugs were once used in hormonal therapy for men with prostate

cancer. This treatment may slightly increase breast cancer risk.

There is concern that transgender/transsexual individuals who take high doses of estrogens as part of sex reassignment could also have a higher breast cancer risk. Still, there haven't been any studies of breast cancer risk in transgendered individuals, so it isn't clear what their breast cancer risk is.

- **Obesity**

Studies have shown that women's breast cancer risk is increased by obesity (being extremely overweight) after menopause. Obesity is also a risk factor for male breast cancer as well. The reason is that fat cells in the body convert male hormones (androgens) into female hormones (estrogens). This means that obese men have higher levels of estrogens in their body.

It might be that some women are more susceptible to develop breast cancer than others but we all can do something to prevent it from happening by leading a healthier lifestyle and taking care of our bodies.

Eat more fruits and vegetables, hydrate, exercise, decrease stress level and depending on your case do yearly mammograms as a birthday gift to yourself.

**After all; Life is good!!**

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