Pan-African Journal of Health and Environmental Science (AHJES)

Odhiambo. Knowldge, Practices, and Atiitude towards Breast Cancer...

Knowledge, Practices, and Attitudes towards Breast Cancer Prevention among Church Members in Silang, Philippines

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Abstract

Background: Breast cancer remains a significant public health concern, making prevention strategies crucial. This study assessed women's knowledge, practices, and attitudes towards breast cancer prevention.

Methods: A quantitative survey using a one-group pre-test and post-test design was conducted.

Results: The results showed that the women surveyed had a good level of knowledge about breast cancer and its risk factors. However, they lacked knowledge about healthy food choices, serving portions, and recommended caloric intake. Despite their positive attitudes towards mammogram screenings, many women did not engage in regular screenings. Factors such as fear, inconvenience, and lack of access to healthcare resources hindered the translation of positive attitudes into action.

Conclusion: The study highlights the need for targeted interventions to bridge the gap between knowledge and practice in breast cancer prevention. Educational initiatives, improved access to mammogram screenings, and efforts to alleviate fear and inconvenience barriers can enhance the effectiveness of preventive measures in reducing breast cancer morbidity and mortality.

Keywords: Public health, breast cancer prevention, knowledge, practices, attitudes, Philippines

Introduction

Breast cancer is the most common cancer in women both in the developed and less developed world. It is estimated that worldwide over 611, 600 women died due to breast cancer (Global Health Estimates, WHO 2017). Although breast cancer is thought to be a disease of the developed world, almost 50% of breast cancer cases and 58% of deaths occur in less developed countries (Ferlay et al., 2015).

In 2017, the number of new cases diagnosed in women was approximately two million (25% of all cancers), with more cases observed in developed regions than in developing countries (Bray et al., 2018; Naderimagham et al., 2014). Furthermore, incidence rates almost quadrupled from one region to another worldwide. The incidence rate in Africa and East Asia was 27 per 100,000, while in Europe, it was 96 per 100,000 (Bray et al., 2013). In 2011, the annual incidence rate in Sub-Saharan Africa (SSA) was 22 per 100,000 women (Torre et al., 2015).

Incidence rates vary greatly worldwide from 19.3 per 100,000 women in Eastern Africa to 89.7 per 100,000 women in Western Europe. In most developing regions, the incidence rates are below 40 per 100,000 (Ferlay et al., 2012). The lowest incidence rates are found in most African countries but here breast cancer incidence rates are also increasing.

Breast cancer survival rates vary greatly worldwide, ranging from 80% or over in North America, Sweden and Japan to around 60% in middle-income countries and below 40% in low-income countries (Ginsburg et al., 2017). However, in less developed countries, survival rates lower. This can be explained mainly by the lack of early detection programs, resulting in a high proportion of women presenting with late-stage disease, as well as by the lack of adequate diagnosis and treatment facilities.

Problem Statement

According to GLOBOCAN 2012, the estimated age-standardized incidence rate (ASR) for invasive female breast cancer in Asia is 29.1 per 100 000 women-years, which is 30% of Northern America and Europe (ASR: 91.6 and 71.1 per 100 000 women-years, respectively (Ferlay et al., 2012). However, incidence rates have been increasing rapidly in Asian countries and breast cancer is now the most frequently diagnosed cancer and the second leading cause of cancer death among Asian women (Ferlay et al., 2010; Shin et al., 2010).

Previous studies have also shown that the age-specific incidence rates of breast cancer have a different pattern among Asian from Western populations and are characterized by an earlier age at onset (Lin et al., 2012). In contrast to the continuous rise in the age-specific rates with advancing age among Western women, rates plateau or decrease after age 50 years among Asian women (Shin et al., 2010; Ferlay et al., 2010). Explanations for this early-onset incidence rate pattern range from calendar-period effects (changes in case ascertainment and/or screening for all age groups at a given point in time) and/or birth cohort effects (changes in risk factors over successive generations) (Fan et al., 2014) to distinct age-specific etiology (Leong et al., 2010) or biology (Hemminki et al., 2011).

Therefore, because breast cancer is the most commonly diagnosed cancer in women, early detection, diagnosis, and treatment are essential to better outcomes. Since many women will discover a breast symptom themselves, it is important that they are breast cancer aware i.e. that they have the knowledge, skills and confidence to notice any breast changes and visit their doctor promptly. For that reason, programs explicitly focusing on breast cancer awareness and prevention are essential especially to vulnerable populations.

Goal

The main goal of this study and intervention is to increase breast health awareness, early detection behaviors, and the need to embrace breast cancer-preventable behaviors among black women in a Christian institution in Silang, Cavite.

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To encourage women to live a healthy lifestyle and increase the number of ladies seeking breast cancer screening while decreasing disparities in breast cancer screening rates among target populations. Through education, in an effort to raise breast cancer awareness, stigma is reduced, and the acquired knowledge leads to earlier detection of breast cancer, which is associated with higher long-term survival rates. In affirmation, Sulik (2010) says that increased awareness has increased the number of women receiving mammograms, the number of breast cancers detected, and the number of women receiving biopsies. Overall, as a result of awareness, breast cancers are being detected at an earlier, more treatable stage.

Specific Objectives

1. By the end of the program, 90% of the participants will have knowledge of breast cancer regarding prevention, screening, and risk assessment.

2. By the end of the program, at least 80% of the participants will be able to practice proper breast self-examination.

3. By the end of the program, at least 70% of the participants will have a positive attitude toward clinical breast examination.

4. By the end of the program, at least 95% of the participants will be able to identify at least five modifiable risk factors.

5. By the end of the program, at least 70% of the participants will be able to make healthy food choices, cook and consume healthy meals, and improve their waist-hip ratio and body mass index.

6. By the end of the program, at least 75% of the participants will be able to perform 30 minutes of aerobic exercises at least five times per week.

Review of Related Literature

Breast cancer is a major public health concern as it continues to be one of the leading causes of death worldwide. There is no known cause of breast cancer, nor is there a sure way to prevent it. However, some things can be done that might lower the risk of contracting breast cancer. This can be especially helpful for women with non-modifiable risk factors for breast cancer, such as having a strong family or personal history, an increase in age, race, exposure to radiation, hormonal treatment, certain gene changes, early menstrual history, reproductive history, and having dense breasts. Modifiable risk factors include diet, obesity, physical inactivity, consumption of alcoholic beverages, hormone replacement therapy, not breastfeeding, use of birth control pills, and not having children. Therefore, breast cancer prevention involves lifestyle changes to minimize risk factors.

WHO recommends integrated non-communicable disease control within the context of comprehensive national control programs (WHO, 2013). These

programs involve prevention, early detection, diagnosis and treatment. Some of the population based strategies to compact the breast cancer problem include raising public awareness and the mechanisms to control breast cancer as well as advocating for appropriate programs and policies. Key to reducing mortality associated with breast cancer is primary prevention.

Primary Prevention

Breast cancer prevention starts with healthy habits. Primary prevention involves controlling the specific modifiable risk factors by promoting a healthy diet and physical activity. It also consists in controlling alcohol intake as well as overweight and obesity, thereby reducing the incidence of breast cancer in the long term. Lifestyle changes have been shown in studies to decrease breast cancer risk even in high-risk women. The following are steps that can be taken to lower the risk:

Diet

Eating a healthy diet might decrease the risk of some types of cancer, as well as diabetes, heart disease and stroke. For example, research has shown that women who eat a Mediterranean diet supplemented with extra-virgin olive oil and mixed nuts might have a reduced risk of breast cancer (Trichopoulou et al., 2010). The Mediterranean diet focuses primarily on plant-based foods, such as fruits and vegetables, whole grains, legumes and nuts. People who follow the Mediterranean diet choose healthy fats,

like olive oil, over butter and fish instead of red meat.

A study done in Singapore revealed that a diet characterized by vegetables, fruit, and soy lowered the risk of breast cancer among postmenopausal women by 30%; this effect was even stronger (43% risk reduction) for those following this diet pattern for five or more years (Butler et al., 2010). Moreover, in a Meta-analysis, researchers postulated that cruciferous vegetable consumption may reduce the risk of breast cancer (Wu et al., 2015).

Furthermore, Sulforaphane, a component found in broccoli vegetables and sprouts, inhibits breast (Li et al., 2010). In addition, an epidemiological study by Norat et al. (2014) reported a significant protective effect of fruits and vegetables against breast cancer when case-control and cohort studies were considered together. Observing the recommended amount of servings of fruits and vegetables is important to get desirable results. A case-control study reported that women who consumed more than 3.8 servings of fruits and vegetables daily had a lower risk of breast cancer when compared with women who consumed fewer than 2.3 daily servings (Baglietto et al., 2011). A diet high in fat may also be a risk for breast cancer. For example, a study involving more than 300,000 women from across Europe concluded that a diet high in fat, particularly saturated fat, is linked to a greater risk of hormone-receptor-positive breast cancer, as well as breast cancer that is HER2-negative, while fiber was a protective factor (Sieri et al., 2014).

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Physical Activity

Being physically active can help individuals to maintain a healthy weight, which, in turn, helps prevent breast cancer. For most healthy adults, engaging in at least 150 minutes a week of moderate aerobic activity or 75 minutes of vigorous aerobic activity weekly, plus strength training at least twice a week (Ibrahim & Al-Homaidh, 2011). Notably, people who are more physically active have a reduced risk of breast cancer, as well as other cancers and diseases, such as heart disease and osteoporosis (Wu et al., 2013). For example, a meta-analysis involving 73 studies conducted around the world revealed a 25% average risk reduction amongst physically active women compared to the least active women. The researchers concluded that physical activity is associated with decreased breast cancer risk via multiple interrelated biological pathways that may involve adiposity, sex hormones, insulin resistance, adipokines, and chronic inflammation (Lynch et al., 2010). Scholars have attested that physical activity improves outcomes in people with cancer. For instance, the European Journal of Oncology Nursing showed that women undergoing chemotherapy for breast cancer who engaged in an exercise program experienced improved physical and mental health. Physical activity also benefits breast cancer survivors' quality of life and overall health.

Waist Hip Ratio (WHR) and Body Mass Index (BMI). It has been suggested that controlling one's weight may be vital in preventing breast cancer because being overweight or obese increases the risk of breast cancer. This is especially true if obesity occurs later in life, particularly after menopause. Overweight and obese women, defined as having a BMI (body mass index) over 25, have a higher risk of being diagnosed with breast cancer compared to women who maintain a healthy weight, especially after menopause (Ewertz et al., 2010). Moreover, being overweight also can increase the risk of breast cancer recurrence in women who have had the disease.

It has become increasingly clear that obesity is associated with increased cancer risk and mortality and that obesity has the potential to diminish essential advances that have been made in the fight against breast and other cancers Teo & Soo, 2013). Ewertz et al. (2010) study reported that obesity is an independent prognostic factor for the development of distant metastases and death after the diagnosis of breast cancer.

Family History

Family history is an important factor that impacts life generally. Research has proved that women whose close relatives had been diagnosed with breast cancer or cervical cancer are at an increased risk of contracting the same disease compared to women with no such history (DeSantis et al., 2014). Also, a recent systematic review and meta-analysis research found out that women with extremely dense breasts and those with first degree relatives with breast cancer were each associated with at least a 2-fold increase

in risk for breast cancer compared to the control group (Nelson et al., 2012).

Age

A woman's age at first menarche, parity, age at first birth, menopausal status, and menopausal hormone therapy have been associated with breast cancer in women. A meta-analysis of 13 studies showed that women whose menarche was at 13 years or less were at an increased risk compared to those who had menarche at 15 years or older (Collaborative Group on Hormonal Factors in Breast Cancer, 2012). Another meta-analysis of 17 studies indicated that nulliparous women had a significantly higher risk of breast cancer than parous women (Nelson et al., 2012). In addition, the study disclosed that women who had their first child at 30 years or beyond had an increased risk for breast cancer compared to those whose first birth was below 30.

Screening

Although some risk reduction might be achieved with prevention, these strategies cannot eliminate the majority of breast cancers that develop in low- and middle-income countries. Therefore, early detection to improve breast cancer outcome and survival remains the cornerstone of breast cancer control (Anderson et al., 2012). There are two early detection methods:

1. Early diagnosis or awareness of early signs and symptoms in symptomatic populations in order to facilitate diagnosis and early treatment

2. Screening – the systematic application of a screening test in a presumably asymptomatic population. It aims to identify individuals with an abnormality suggestive of cancer.

Irrespective of the early detection method used, central to the success of population based early detection are careful planning and a well-organized and sustainable program that targets the right population group and ensures coordination, continuity and quality of actions across the whole continuum of care. For instance, targeting older women nearing menopause and women of color who are more at risk. (Yip et al., 2012).

Early diagnosis remains an important early detection strategy, particularly in low- and middle-income countries where the diseases are diagnosed in late stages and resources are limited. There is evidence that this strategy can increase the proportion of breast cancers detected at an early stage of the disease, which is more amenable to curative treatment (Yip et al., 2012). Some of the methods used include;

1. Mammography screening. There is evidence that organized population-based mammography screening programs can reduce breast cancer mortality by around 20% in the screened group versus the unscreened group across all age groups

2. Breast self-examination (BSE). Although there is no evidence on

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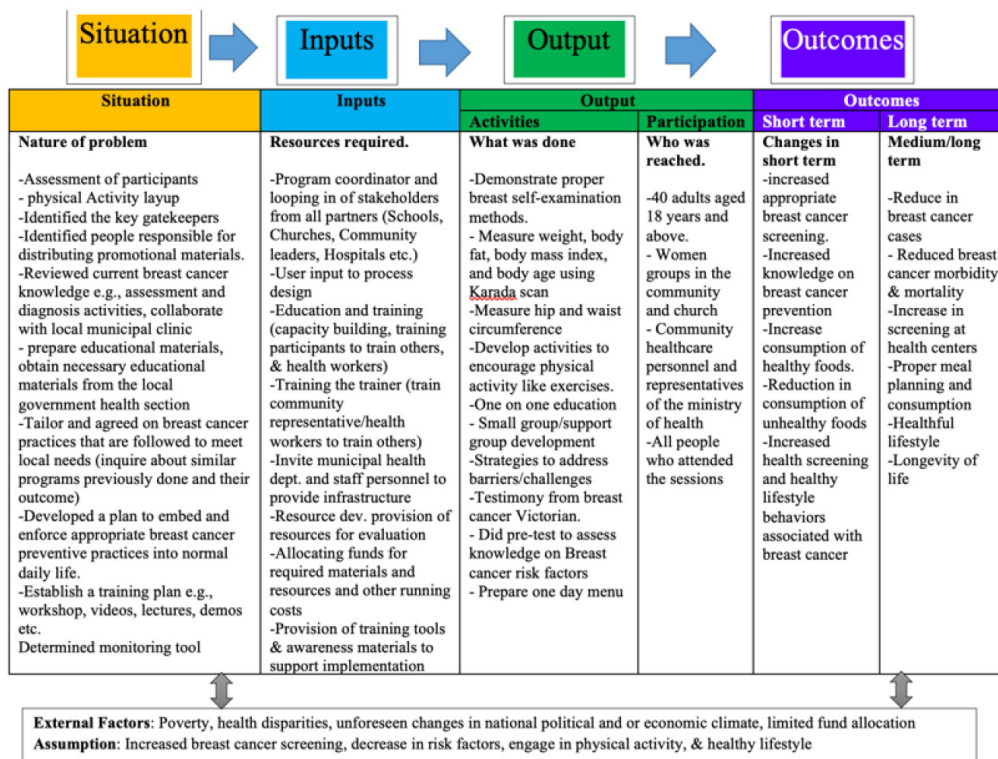Odhiambo. Knowldge, Practices, and Atiitude towards Breast Cancer...

the effect of screening through breast self-examination (BSE), the practice of BSE has been seen to empower women to take responsibility for their health. Therefore, BSE is recommended for raising awareness among women at risk rather than as a screening method.

3. Clinical Breast Examination (CBE). Promising preliminary results show that the age-standardized incidence rate for advanced-stage breast cancer is lower in the screened group compared to the unscreened group (Sankaranarayanan, 2011).

Logic Model

A logic model is a conceptual map visualizing the relationship among resources needed to ensure program implementation. Activities needed, short-term goals, and long-term goals are also reflected. The logic model acts as a guide in planning breast cancer prevention programs.

Figure 1

Breast Cancer Logic Model

Situation	Inputs	Output		Outcomes	
		Activities	Participation	Short term	Long term
Nature of problem -Assessment of participants - physical Activity layup -Identified the key gatekeepers -Identified people responsible for distributing promotional materials. -Reviewed current breast cancer knowledge e.g., assessment and diagnosis activities, collaborate with local municipal clinic - prepare educational materials, obtain necessary educational materials from the local government health section -Tailor and agreed on breast cancer practices that are followed to meet local needs (inquire about similar programs previously done and their outcome) -Developed a plan to embed and enforce appropriate breast cancer preventive practices into normal daily life. -Establish a training plan e.g., workshop, videos, lectures, demos etc. Determined monitoring tool	**Resources required.** -Program coordinator and looping in of stakeholders from all partners (Schools, Churches, Community leaders, Hospitals etc.) -User input to process design -Education and training (capacity building, training participants to train others, & health workers) -Training the trainer (train community representative/health workers to train others) -Invite municipal health dept. and staff personnel to provide infrastructure -Resource dev. provision of resources for evaluation -Allocating funds for required materials and resources and other running costs -Provision of training tools & awareness materials to support implementation	**What was done** -Demonstrate proper breast self-examination methods. - Measure weight, body fat, body mass index, and body age using Karada scan -Measure hip and waist circumference -Develop activities to encourage physical activity like exercises. -One on one education - Small group/support group development -Strategies to address barriers/challenges -Testimony from breast cancer Victorian. - Did pre-test to assess knowledge on Breast cancer risk factors - Prepare one day menu	**Who was reached.** -40 adults aged 18 years and above. - Women groups in the community and church - Community healthcare personnel and representatives of the ministry of health -All people who attended the sessions	**Changes in short term** -increased appropriate breast cancer screening. -Increased knowledge on breast cancer prevention -Increase consumption of healthy foods. -Reduction in consumption of unhealthy foods -Increased health screening and healthy lifestyle behaviors associated with breast cancer	**Medium/long term** -Reduce in breast cancer cases - Reduced breast cancer morbidity & mortality -Increase in screening at health centers -Proper meal planning and consumption -Healthful lifestyle -Longevity of life

External Factors: Poverty, health disparities, unforeseen changes in national political and or economic climate, limited fund allocation
Assumption: Increased breast cancer screening, decrease in risk factors, engage in physical activity, & healthy lifestyle

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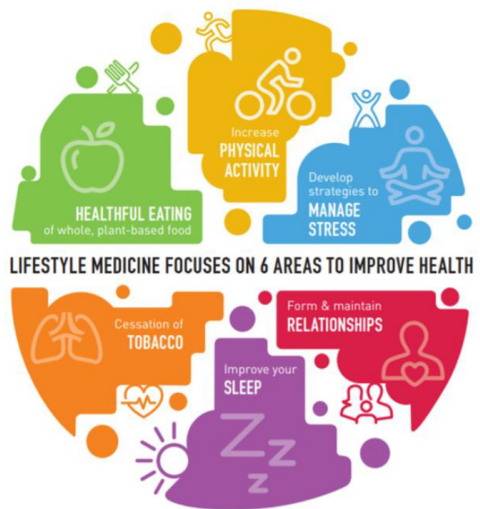
Theoretical Framework

The Health Belief Model and Lifestyle Medicine Model guided this study. According to the Health Belief Model, behavioral beliefs and modifying factors effectively shape behavior. When a woman is susceptible to breast cancer (perceived susceptibility) and aware of the threat of disease on their health (perceived severity), and also knows the benefits of preventive measures (perceived benefits) rather than its barriers (perceived barriers), she is most likely to change her lifestyle (Shiryazdi et al., 2014). Daily habits and practices contribute significantly to individual health.

On the other hand, screening is important in detecting the early onset of breast cancer to start treatment before the cancer advances. In this case, a positive expectation that taking part in mammography screening as a routine checkup contributes towards reducing one's chance of dying from breast cancer acts as a perceived benefit and, hence motivates individuals to participate in screening. For example, research has revealed that women who believe mammography screening can reduce mortality rate because of its ability to detect early breast cancer are more likely to go for screening (Lee & Vang 2010). Moreover, these women are more likely to be confident in adopting healthy behaviors even when faced with barriers such as high screening costs.

Lifestyle Medicine Model

Lifestyle Medicine involves the use of evidence-based lifestyle therapeutic approaches, such as a predominantly whole food, plant-based diet, regular physical activity, adequate sleep, stress management, avoidance of risky substance use, and other non-drug modalities, to prevent, treat, and often, reverse the lifestyle-related, chronic disease that's all too prevalent (Sagner et al., 2014). A lifestyle medicine (LM) practice aims to treat the whole person, focusing on addressing the root lifestyle causes of disease. Below is a diagram showing the focus of lifestyle medicine. In this intervention, only the top half of the model was utilized.

Figure 2

Lifestyle Intervention Model

Note. Adopted from Community Care Clinic of Rowan County, Inc

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Methodology

Research Design

This study used a one-group pretest-posttest design. This particular design is utilized by public health researchers to determine the effect of a treatment or intervention on a given sample. This research design is characterized by two features satisfied in the current study. First, only one single group of participants was used. Meaning all participants were given the same treatments and assessments. Second, the researcher followed a linear ordering which necessitated the assessment of a dependent variable (pre-test) before and after a treatment was implemented (post-test). Later, the effect of a treatment was determined by calculating the difference between the first and second assessments.

Sampling Techniques

The sampling method used was purposive sampling. After the general health assessment, which was done two weeks prior to the commencement of the program, women who were at risk were enrolled in the breast cancer awareness sessions. These women met the criteria: women who exhibited one or more risk factors. The risk factors included consuming an unhealthy diet, living a sedentary lifestyle, increased WHR, a BMI of more than 25, a history of breast cancer, and an age of more than 40 years.

Target Audience

The target audience was the African women who were either students or spouses of students in a Christian institute in the Philippines.

Methods of Implementation and Strategies.

To implement the intervention, a program was structured specifically for these groups aiming to reduce the risk factors and improve knowledge on breast cancer in the target population.

Breast Cancer Awareness Program Know your Lemons Program

Know 'Your Lemons' program is a six-week program designed to raise breast cancer awareness. The target population was the African women who were either studying in a Christian university or accompanying their spouses who were students. Before the start of the program, screening was done to identify the women who were at risk. Anthropometric measures were taken, and the Karada scan was used to measure weight, body fat, body mass index, and body age. The waist circumference and hip circumference were taken to calculate the waist/hip ratio.

The main goal was to raise awareness and educate participants on the risk factors for breast cancer. The participants were enrolled in an exercise program and nutrition education was given to enable them adopt a healthy lifestyle. An individualized nutrition prescription was given to all the participants by a registered dietician to help them plan their meals. The purpose was to educate participants on risky lifestyle behavior that may precipitate breast cancer. This

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was done in the hope that the individuals may contemplate behavior change and maintain such change resulting in good health and overall wellbeing.

Lectures about healthy habits were given. For example, diet and breast cancer associations, the importance of physical activity and maintaining a healthy weight, stress management, sleep patterns, and social relationships. At the same time, the participants were educated on breast cancer risk factors; much emphasis was put on the modifiable risk factors. Participants were encouraged to join an exercise program.

Data Analysis

At the end of the program, data was analyzed according to the objectives. The first objective was analyzed using descriptive statistics such as frequencies and percentages. This was done to determine the level of knowledge, practice, and skills in relation to breast cancer. The total average score for each individual was calculated at the beginning and the end of the program then compared to the standard established by the researcher.

The following formula was used to analyze the pre-test and post-test results.

$$\% \text{ of increase } = \frac{\text{post} - \text{test} - \text{pre} - \text{test}}{\text{pre} - \text{test}} \text{ X } 100$$

The result will demonstrate the percentage of increase or decrease in knowledge, practice, and skills; these were indicators used to evaluate the program's success.

The second objective was measured by reviewing the WHR and BMI.

% increase/decrease = WHR at end of program – WHR at beginning of program

% increase/decrease = BMI at end of program – BMI at beginning of program

The third objective was measured by reviewing the physical activity charts given to the participants to record the hours spent weekly on exercise. Then the frequency, intensity, and time spent on exercise were compared against the standard for adults of 300 minutes (5 hours) a week of moderate-intensity, or 150 minutes a week of vigorous-intensity aerobic physical activity, or an equivalence combination of moderate -and vigorous-intensity activity (CDC, 2011).

Results and Discussion

Sociodemographic characteristics

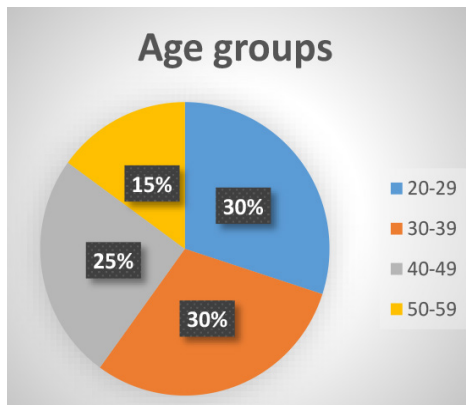The findings are presented in the form of pie charts.

Figure 4

Age Groups

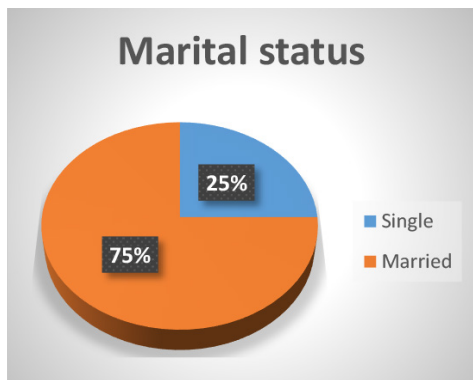

Figure 5

Marital Status

Figure 6

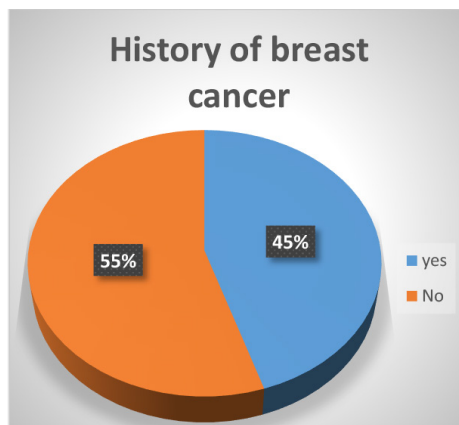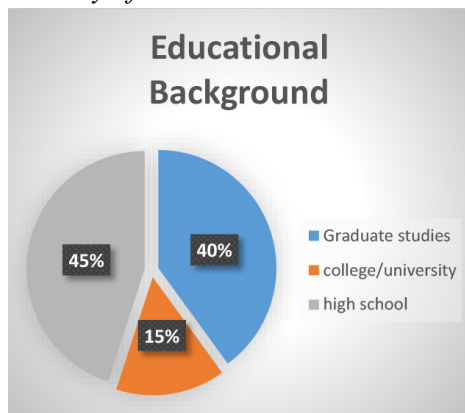*Educational Background*

Figure 7

History of Breast Cancer

The findings showed that the participants were evenly represented from all the age groups although the 50-59 group had the lowest presentation. Most of the women who participated are married, compared to only 25% single. This may be due to the false notion that older women are the ones who are vulnerable to breast cancer because they are nearing menopause. Most participants are college/university degree holders representing 45%. About 40% have either completed graduate education or are in the process of completing their degrees while only 15% are high school graduates.

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Table 1

Knowledge of Breast Cancer and BC Prevention, Screening, and Risk Assessment and Knowledge and Practice of Proper Breast Self-Examination.

	Knowledge of Breast Cancer and BC prevention, screening, and risk assessment			Knowledge and practice of proper Breast Self-Examination		
Name	pre-test	post-test	difference	pre-test	post-test	difference
Marie	14	20	6	3	12	9
Witonze	16	20	4	3	10	7
Rosemary	10	18	8	0	12	12
Alice	18	20	2	14	20	6
Curenis	0	15	15	0	14	14
Aurelie	18	20	2	4	18	14
Li Na	10	20	10	6	20	14
Ellen	8	15	7	0	14	14
Ruth	20	20	0	13	20	7
victoria	16	20	4	16	20	4
Yvone	16	20	4	10	20	10
Lubani	16	20	4	18	20	2
Betty	18	20	2	12	20	8
Tembi	10	20	10	9	18	9
Alaisa	20	20	0	15	20	5
Osee	4	18	14	10	17	7
Beatrice	10	20	10	13	20	7
Leah	10	18	8	10	18	8
Nadine	8	16	8	12	18	6
rose	6	18	12	7	17	10
Total	248	378	130	175	348	173

The first objective was to educate the participants about breast cancer and breast cancer prevention, screening, and risk assessment. A pre-test and post-test were done and a formula was used to determine the increase or decrease in knowledge. The results were as follows:

$$\% \ of \ increase = \frac{378 - 248}{248} X \ 100 = 52\%$$

The results show that there was an increase in knowledge of breast cancer and breast cancer prevention, screening, and risk assessment by 52%. The participants learned the importance of early screening and preventive strategies to help them identify the signs and symptoms of the disease. However, the target of 90% was not reached because most of the participants already have knowledge of breast cancer prevention and screening, but they do not practice it.

The second objective was to disseminate information on the

knowledge and practice of proper breast self-examination. In this case a pre-test and post-test were done and comparisons were done. The same formula was used.

$$\% \ of \ increase \ = \frac{348-175}{175} X \ 100 = 98.8\%$$

The results showed a tremendous increase of almost 100% in knowledge and practice of proper breast self-examination. More than 90% of the participants did not have any knowledge on how to perform a self-breast examination. The 10% of the participants indicated that they had an idea about it but had not practiced. Therefore, the anticipated 80% target was surpassed, and participants were happy to learn about breast self-examination and they practiced it before the program ended.

Table 2

Attitude toward Clinical Breast Cancer and Knowledge of Risk Factors

Name	Attitude towards clinical breast cancer			Knowledge of risk factors		
	pre-test	post-test	difference	pre-test	post-test	difference
Marie	7	16	9	10	20	10
Witonze	1	15	14	5	18	13
Rosemary	2	14	12	10	20	10
Alice	6	19	13	9	18	9
Curenis	0	15	15	5	15	10
Aurelie	10	18	8	15	20	5
Li Na	8	18	10	15	20	5
Ellen	2	14	12	4	17	13
Ruth	10	20	10	13	20	7
Victoria	16	20	4	10	20	10
Yvonne	18	20	2	13	20	7
Lubani	18	20	2	18	20	2
Betty	16	20	4	13	20	7
Tembi	2	12	10	0	16	16
Alaisa	15	20	5	18	20	2
Osee	4	14	10	6	16	10
Beatrice	14	20	6	13	20	7
Leah	8	18	10	6	20	14
Nadine	10	18	8	8	20	12
rose	14	20	6	10	20	10
Total	181	355	174	201	380	179

The third objective was to create a positive attitude towards clinical breast exams whereby women willingly seek annual medical checkups including clinical breast exams and mammography screening for purposes of early detection and treatment. The findings show a positive change in the participant's attitude in seeking a clinical breast exam. At least five out of the 20 participants had visited a doctor and had a mammography done within November 2018. It was noted that most of the women who visited the doctor were the older ones in the study. Moreover, all the 20 participants had a positive change of 96% in attitude exceeding the 70% projected.

$$\% \ of \ increase \ = \frac{355 - 181}{181} \ X \ 100 = 96\%$$

The fourth objective was to educate participants on the risk factors associated with breast cancer. The findings suggest that the participants increased their knowledge by 89% on breast cancer risk factors. More than 95% of the participants could identify more than half of the risk factors, especially modifiable ones. This is impressive because the participants are aware that they can modify their behavior to minimize their risk of getting breast cancer.

$$\% \ of \ increase \ = \frac{380 - 201}{201} \ X \ 100 = 89\%$$

Table 3

Waist Hip Ratio and Body Mass Index

Name	Waist Hip Ratio			Body Mass Index		
	Pre-test	Post-test	Difference	Pre-test	Post-test	Difference
Marie	0.7	0.7	0	19.9	20	0.1
Witonze	0.8	0.8	0	20.2	21	0.8
Rosemary	0.86	0.8	-0.06	27.5	26.5	-1
Alice	0.78	0.8	0.02	27.9	27	-0.9
Curenis	0.76	0.7	-0.06	27.6	26	-1.6
Aurelie	0.8	0.8	0	25.9	25	-0.9
Li Na	0.81	0.79	-0.02	28.3	26	-2.3
Ellen	0.7	0.7	0	26.6	25.2	-1.4
Ruth	0.81	0.79	-0.02	23.7	23	-0.7
Victoria	0.84	0.8	-0.04	35.4	30.5	-4.9
Yvonne	0.71	0.71	0	21.2	21	-0.2
Lubani	0.75	0.75	0	29.3	27.2	-2.1
Betty	0.8	0.8	0	32.3	30.1	-2.2
Tembi	0.81	0.8	-0.01	29.5	28.2	-1.3
Alaisa	0.73	0.7	-0.03	26.7	25	-1.7
Osee	0.82	0.79	-0.03	26.3	26	-0.3
Beatrice	0.81	0.79	-0.02	28.5	26.4	-2.1
Leah	0.8	0.8	0	28.7	26.2	-2.5
Nadine	0.76	0.75	-0.01	30.2	28.1	-2.1
rose	0.89	0.81	-0.08	27.6	26.4	-1.2
Total	15.74	15.38	-0.36	543.3	514.8	-28.5

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The fifth objective was to educate participants on healthy food choices, serving portions, a balanced diet, and the recommended caloric intake for healthy people. The main aim was to encourage participants to eat the right amount of food that nourishes the body well to attain and maintain the recommended waist-hip ratio of less or equal to 0.8. Although most participants did not have a significant change in the WHR, they were able to make healthy menus and also understood the recommended food servings. Moreover, the participants are of African origin and have a pear-shaped body. This means that even when obese, their WHR is still within acceptable range. This may have contributed significantly to the little reduction. Notably, the participants expressed their gratitude during the consequent meetings and often posted their food servings on social media to show that they followed the recommended servings.

$$\% \ of \ increase \ = \frac{15.38 - 15.74}{15.74} \ X \ 100 = \text{-2.3\%}$$

The sixth and last objective was to train and perform various types of physical activities participants can engage in to attain and maintain a healthy BMI. Most participants participated in the daily exercise program and recommended their family members to join it. The results were impressive because most participants improved their BMI overall even though they had not attained the recommended values. A -5.25% means that average participants reduced their BMI properly from obese to overweight,

which is a good starting point, given the program's short time of less than two months.

$$\% \ of \ increase \ = \frac{514.8 - 543.3}{543.3} \ X \ 100 = \text{-5.25\%}$$

Conclusion

There is no sure way of preventing breast cancer nor a particular way of curing it. However, lifestyle decisions can significantly reduce the risk of breast cancer. Some lifestyle changes include following a healthy diet, engaging in physical activity, and maintaining a healthy BMI and WHR. Other preventive strategies call for women to carefully think about early screening through mammography and yearly clinical breast examination. Self-breast examination is also an important practice for women of all ages for early detection and treatment.

Although breast cancer risks persist across the lifespan, inter-professional strategies have proven viable in reducing morbidity and mortality. Primary prevention is a priority and it involves prevention of onset as well as identifying and treating asymptomatic persons early. Awareness of symptoms and the need for screening are important ways of reducing risk.

Recommendation

I recommend that women consider prevention and early detection as the first plan of intervention and only result in treatment when the first plan fails, meaning lifestyle change is key to breast cancer prevention. Moreover, breast cancer treatment is costly, so I recommend

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that health ministries should equip the healthcare facilities with necessary screening equipment to reduce the costs, especially in low-income countries, which sadly are the ones with increasing breast cancer rates.

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