

PREVENTION & NUTRITION LESSON BREAST CANCER

Breast Cancer Prevention and Nutrition Lesson Plan for Women between 40 and 50

Breast Cancer, Group 6

University of Georgia

HPRB 3850

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Background

Define the Chronic Condition

Cancer is defined by the WHO as a large group of diseases that can begin in almost any organ or tissue of the body when abnormal cells grow or spread uncontrollably (WHO, 2023). The development of cancer can be influenced by a variety of factors. While not all causes of cancer are clear, it is important to note some known preventable risk factors, including : cigarette smoking and secondhand smoke exposure, excessive sun exposure, overweight and obesity, and heavy alcohol consumption (CDC, 2022). There are over 200 different types of cancer, each classified based on starting point and type of cells impacted ; the most common cancers in humans are carcinomas, which is cancer that begins in the skin or in tissues that line or cover internal organs (Cancer Research UK, 2021). Common examples of carcinoma cancers include : breast cancer, prostate cancer, lung cancer, and colon cancer to name a few (Cleveland Clinic, 2023).

Epidemiological Significance and Population at Risk

An estimated 2.0 million people will be diagnosed with cancer in 2023 (NCI, 2023). The highest rate for women will be breast cancer with about 297,000 new cases recorded (NCI, 2023). The highest rate for men will be prostate cancer with around 288,000 new cases (NCI, 2023). Lung and Bronchus cancer will be highest for both men and women with about 238,000 new cases (NCI, 2023). Around 430,000 people will die from cancer in 2023 (NCI, 2023). Cancer is a top ten leading cause of death in the world (Ahamd B. et al., 2023). The median age for cancer diagnosis is 66 (NCI, 2021). Those who smoke and vape are at a larger risk for Lung and Bronchus cancer (NCI,2023). Recent studies have shown that diet plays a large role in risk factors for colorectal cancer (NIH, 2023). In relation to breast cancer, NH white women are 14% more likely to develop breast cancer in their lifetime (Susan G. Komen, 2020). Following NH white women, NH black women have a 12% lifetime risk for breast cancer (Susan G. Komen, 2020).

Risk Behavior and Prevention

When it comes to a chronic disease such as cancer, the causes for it are composed primarily of things that cannot be modified. This is seen as one of the primary unmodifiable risk factors for cancer, age. Evidence shows that the incidence of cancers increases with age, with the highest risk of receiving a diagnosis at age 40-50 (White et al., 2014). Family history and genetics also play a large role in the incidence rate of cancer, making the disease much more difficult to prevent. Yet it's not just the unmodifiable risk factors that cause cancer, in fact, there are many other behavioral and lifestyle choices that can greatly increase one's risk of developing cancer. According to the CDC, physical inactivity, obesity, alcohol usage, high-fat diets, weight gain after menopause, and more are all behaviors and risk factors that have the potential to increase the incidence of cancer rates (CDC, 2021). For example, according to the CDC, excessive alcohol use can be a dangerous behavior due to the way alcohol is broken down in the body. When consumed, alcohol is broken down into a chemical named *acetaldehyde*, which can damage DNA and prevent the body from repairing any damages (*Risk Factors and Cancer*, 2020). Therefore, if someone drinks too often, there is a higher chance that the DNA could be damaged enough for a cell to grow out of control and create a cancer tumor (*Risk Factors and Cancer*, 2020). Another one of the main risk factors is obesity and has to do with a combination of risk behaviors, mainly diet and physical inactivity. Due to lack of consistent physical activity throughout the week and a diet utilizing lots of red meat and high-fats, the likelihood of someone becoming obese is greatly increased (*Risk Factors and Cancer*, 2020). With obesity comes a plethora of health issues, and has been known to increase risk for about 13 cancers (*Advancing Progress in Cancer Prevention - National Cancer Institute*, 2021).

There are many different types of cancer, so it can often be hard to explain the signs of all of them, however there are a few more specific signs that can applied to most cancers; these

include: lumps that can be felt under the skin, yellowing or darkening of the skin, sores that don't heal, and changes to existing moles (Mayo Clinic, 2018). Some more general signs can include: fatigue, unintentional drastic weight change, changes in bowel/bladder habits, persistent and unexplained muscle/joint pain, etc. (Mayo Clinic, 2018). Once signs of cancer have been recognized and a diagnosis has been given, some symptoms one could expect to see can include the following: irregular immune system reactions leading to seizures or difficulty walking, stroke-like symptoms if the cancer presses on certain nerves causing loss of function over a particular body part, weight loss, pain, fatigue, nausea, etc. (Mayo Clinic, 2018).

It's often pretty hard to reduce one's risk of cancer or prevent its progression, especially if they are genetically predisposed to it, however, there are ways to catch it early and many lifestyle changes people can partake in to reduce the likelihood of its contraction. One of the main ways that one could try to prevent the issue from progressing is to participate in early screening as soon as abnormal symptoms start occurring (*Can I Do Anything to Prevent Cancer Recurrence?*, 2020). It helps to catch cancer at its early stages and allows for better treatment and a higher likelihood of survival if proper treatment is administered, such as through chemotherapy or other forms of medical procedures (*Can I Do Anything to Prevent Cancer Recurrence?*, 2020). Yet, like with all chronic disease, focus should be placed on if and how we can prevent cancer from occurring. Unfortunately, there isn't enough scientific evidence to be certain that one can fully prevent cancer, but there are steps that one can take to both reduce the risk and obtain a better quality of life.

One common risk behavior is the overconsumption of alcohol, so a way that one might better their chances of reducing cancer risk would be to consume less alcohol. Another thing that people can do would be to improve the nutritional quality of their diet (*Can I Do Anything to Prevent Cancer Recurrence?*, 2020). This would include: eating a variety of vegetables/fruit, limiting red/processed meat, avoiding sugary beverages, and eating foods that are made with whole grain as opposed to refined grains or sugars (*Can I Do Anything to Prevent Cancer Recurrence?*, 2020). By establishing and maintaining a healthy diet, one could boost their immune system and lower risk of obesity, which will lower their risk of cancer (*Can I Do Anything to Prevent Cancer Recurrence?*, 2020). Finally, another thing that one can do is to stay regularly physically active, with at least 150-300 minutes per week of moderate intensity activity or 75 to 150 minutes per week of vigorous intensity (*Can I Do Anything to Prevent Cancer Recurrence?*, 2020). Although, it should be made clear that few studies have looked to see if physical activity would prevent or slow the progress of cancer. However, it has been proven to improve quality of life by reducing anxiety/depression, improving mood, reducing symptoms, and decreasing likelihood for obesity (*Can I Do Anything to Prevent Cancer Recurrence?*, 2020).

There have been multiple programs that have worked to prevent and fight cancer, with one of the biggest programs being the National Comprehensive Cancer Control Program NCCCP. This program is based in the United States and works by looking at all the other programs and plans used in various states in dealing with cancer (Puckett et al., 2016). For example, one program under the NCCCP is the Georgia Cancer Control Consortium, which is facilitated by the Georgia Department of Public Health, and is working to build and maintain a strong infrastructure of cancer prevention/treatment programs (Puckett et al., 2016). The program utilizes a multitude of nutrition and physical activity approaches towards cancer, with some of the main strategies used being to increase awareness of the connection between the risk factors and illness, school wellness, and worksite wellness (Puckett et al., 2016). The program found that these approaches were effective when obesity was reduced and it also allowed for a better quality of life (Puckett et al., 2016).

Health Theory

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The Health Belief Model (HBM) is a health theory that can be used as a method of prevention in this case study. The HBM is a cognitive model that states an individual's beliefs influence their health-related behaviors. This health theory can be used to measure one's beliefs and behaviors towards cancer prevention and screening (Zare, et. al). There are six constructs in the Health Belief Model: perceived severity, perceived susceptibility, perceived benefits, perceived barriers, cues to action, and self-efficacy.

Perceived susceptibility refers to an individual's belief in their risk of getting an illness or disease. In this case study, perceived susceptibility relates to a woman's understanding of their susceptibility to cancer and the increased risk that comes with age and additional risk behaviors. Perceived severity refers to an individual's belief in the seriousness and potential consequences of a health condition or disease. This case study would involve a woman's understanding of the impact of having cancer on their physical, emotional, and social well-being. Perceived benefits are beliefs about the positive outcomes associated with adopting a new health behavior. Perceived barriers refers to an individual's perception of the obstacles that may prevent the adoption of new behaviors. Cues to Action are the external factors that may encourage an individual to take action towards adopting a preventive behavior. Lastly, self-efficacy is an individual's belief in their ability to successfully complete a goal.

Lesson Plan:

This lesson plan focuses on general cancer prevention behaviors with an emphasis in making changes in nutritional behaviors.

Perceived Susceptibility and Severity: This construct will be used by presenting statistical data on breast cancer incidence, prevalence, and mortality rates in women aged 40-50 in metropolitan Atlanta. This will encourage individuals with the opportunity to reflect on their personal susceptibility and the severity of breast cancer in order to make an informed decision about adopting a new health behavior.

Perceived Benefits: The lesson plan will present evidence-based research that discusses the positive impacts of making lifestyle modifications and adopting new health behaviors on reducing one's risk of breast cancer.

Perceived Barriers: Perceived barriers of reducing one's risk of breast cancer will be addressed in the lesson plan by discussing common barriers to adopting health behaviors, such as time constraints, lack of resources, or socio-cultural factors. The lesson plan will help provide individuals with practice solutions to overcome these barriers.

Cues to Action: The lesson plan will help raise awareness on the importance of cancer screenings and doctor's visits for early detection and prevention which will motivate individuals to take action towards cancer prevention.

Self-Efficacy: Self-efficacy will be promoted in the lesson plan through workshops that boost individual's confidence of adopting healthy behaviors and provide on-going support and resources.

Integrating the Health Belief Model into this case study will help women between the ages of 40 and 50 be empowered to take charge of their health and adopt preventive measures against breast cancer. The lesson plan highlights constructs of perceived susceptibility, severity, benefits, barriers, cues to action, and self-efficacy which aims to educate and motivate women to make informed decisions, overcome obstacles, and maintain healthy behaviors for long-term breast cancer prevention.

Summary of Lesson Plan and Evaluation

The goal of the lesson plan is to provide women in their 40s and 50s a comprehensive and holistic outline on prevention and intervention tactics in order to reduce their risk of breast cancer. This lesson plan in particular combines various objectives, emphasizing : nutritional education, understanding primary and secondary prevention methods, and overall personal susceptibility to breast cancer. After completion of this lesson plan, the overarching goal is for

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women ages 40-50 to understand and have confidence in their knowledge regarding : the severity of a breast cancer diagnosis and the health outcomes associated with breast cancer, individual personal susceptibility to breast cancer based on age, genetic history and other lifestyle factors, feel self assured in their ability to enact nutrient-rich diets as a cancer prevention action, and understand and utilize primary and secondary prevention techniques.

In order to achieve the objectives outlined above, assessments prior to the lesson plan will be conducted. Assessments will include pre and post questionnaires allowing participants to have a moment of self reflection and evaluate their personal perception and risk of developing breast cancer. The questionnaire will target understanding of nutrition impact on cancer, ability to enact healthy habits, overall perception of nutrition importance, as well as ask about use of primary and secondary prevention techniques. Additionally, the plan would also try to provide private consultation with dieticians to allow individual evaluation of previous diet habits.

The structure of the program would follow a two day learning plan, with each day targeting different information. Day 1 of the plan would target breast cancer education , while day two of the plan would focus on skill building for nutrition prevention. Day one more specifically would incorporate presentations and seminars from experts (i.e presentations from oncologists about breast cancer, risk factors, and prevention methods),breakout groups and collaboration with other participants, and Q & A's with physicians and doctors. Day 2, would focus more on the nutritional aspect of breast cancer and incorporate more hands-on activities. For example, participants would get to meet and learn from registered dieticians and nutritionists as well as get to learn and cook healthy recipes.

In order to find participants, various recruiting methods would be used. Flyers and advertisements would be placed in areas where women who are 40-50 years old may have connections (i.e beauty salon, ObGyn offices, etc). Flyers would advertise the program and importance of breast cancer prevention education. Additionally, the use of social media platforms (i.e Facebook, Instagram,etc) would be used to get the word out about the program.

Lesson Topic: Nutrition for Breast Cancer Prevention Population: Women 40-50

Length of lesson: 2-day educational program

Stage 1 – Desired Results
<p>Understanding (s)/goals</p> <p>After completion of this lesson plan, women ages 40-50 will understand:</p> <ul style="list-style-type: none">- The severity of being diagnosed breast cancer and the health outcomes associated with breast cancer- Their personal susceptibility to breast cancer based on age, genetic history, and other lifestyle factors- Using a nutrient-rich diet as a cancer prevention technique and a way to support a high quality of life- The importance of primary and secondary prevention techniques
<p>Student objectives (outcomes)</p> <p>After completion of this lesson plan, the target population will be able to...</p> <ul style="list-style-type: none">- Schedule a mammogram with their healthcare provider- Understand how to perform a self-breast examination- Change modifiable risk factors to reduce their chance of breast cancer- Create a meal plan and learn how to make healthy meals to support a healthy lifestyle in hopes to prevent a cancer diagnosis

Stage 2 – Assessment Evidence

Performance Task(s):

- Pre and Post Questionnaire evaluating participant perception and risk of developing breast cancer. The questionnaire will target understanding of nutrition impact on cancer, ability to enact health habits, and overall perception of nutrition importance
- Private consultation with dietician to allow individual evaluation of previous diet habits

Stage 3 – Learning Plan

Learning Activities:

Day One: Breast Cancer Education

- Participants take pre-questionnaire
- Participants will converse with each other for a few minutes
- Presentation from oncologist about breast cancer, risk factors, and prevention methods
- Breakout group
 - Talk about information just heard and ways to implement prevention into their lives
- Presentation from research oncologist about new developments in breast cancer research
 - Breakout session
 - Discuss what the new research means for future patients and new prevention methods such as detection.
- Questions for an oncologist about breast cancer
- Watch videos
 - Video with a survivor
 - Video on how to do a self examination

Day Two: Nutrition for Prevention (Skills Day)

- Brief icebreaker questions
- Introduction of Registered Dietitian and Chef
 - Handing out of cooking utensils and food
 - Pair up into groups of 4
 - Begin cooking healthy foods for breakfast, lunch, and dinner with the help of the nutritionist and chef
- Breakout session
 - Eat food just made
 - Discuss questions about meal prepping and what to look for at the grocery store
 - Share concerns and questions about cooking
- Final food lesson
 - Women will follow the chef and nutritionist on making a healthy dessert alternative
- Discussion with Nutritionist: how to afford healthy food on budget
- Questions
- Completion of post-questionnaire

Stage 4: Evaluation Plan

How will you evaluate your participants to see if they met the objectives? brooke

- Monthly self report questionnaires and dietician lead focus groups will be established in order to allow participants and researchers to track their improved nutritional habits as well as continue to be encouraged by other participants.
 - Self-reported data will provide insight into whether participants are enacting healthy nutritional habits they learned into daily life
 - Self reported questionnaire will look for various highlighted behaviors, including : if participants read nutritional labels while grocery shopping, how often participants report meal prepping healthy meals, amount of days a week participants eat fast food, etc
 - Focus groups with dietician will allow participant progress to be properly evaluated and addressed with nutrition professional insight
- Brief Quiz or test after the completion of program
 - The quiz would be brief, and would work to ensure participants understood basic nutritional goals and impact on breast cancer.

Pre and Post-Test Questionnaire

1. I feel confident in my knowledge of breast cancer prevention.
Strongly Disagree Disagree Neutral Agree Strongly Agree
2. I understand the risk factors associated with breast cancer.
Strongly Disagree Disagree Neutral Agree Strongly Agree
3. I know how to read nutrition labels.
Strongly Disagree Disagree Neutral Agree Strongly Agree
4. I understand how my diet affects my risk for breast cancer.
Strongly Disagree Disagree Neutral Agree Strongly Agree
5. I think I am at risk for develop breast cancer
Strongly Disagree Disagree Neutral Agree Strongly Agree
6. I understand the effects breast cancer would have on my quality of life.
Strongly Disagree Disagree Neutral Agree Strongly Agree
7. I think my current diet lowers my risk for breast cancer
Strongly Disagree Disagree Neutral Agree Strongly Agree
8. I believe I can change my chances of getting breast cancer.
Strongly Disagree Disagree Neutral Agree Strongly Agree
9. I feel confident in my cooking skills.
Strongly Disagree Disagree Neutral Agree Strongly Agree
10. I know where to buy healthy and nutritious foods.
Strongly Disagree Disagree Neutral Agree Strongly Agree

Evaluation Questionnaire

Following Completion of this program:

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1. I feel that I can cook nutritious meals now?
Strongly Disagree Disagree Neutral Agree Strongly Agree
2. I feel more confident in reading nutrition labels
Strongly Disagree Disagree Neutral Agree Strongly Agree
3. On a scale of 1-10 how do you feel about preventing breast cancer through nutrition?
1 2 3 4 5 6 7 8 9 10
4. On a scale of 1-10 how likely are you to use the knowledge you were given during this program?
1 2 3 4 5 6 7 8 9 10
5. On a scale of 1-10 how likely are you to recommend this program to others?
1 2 3 4 5 6 7 8 9 10

Evaluation

Objectives and their Assessments

The objectives for this lesson plan was to educate participants on modifiable risk factors as it pertains to breast cancer, including behaviors relating to : nutrition, screening & self breast exams, and other health habits. The objectives and development of the lesson plan was based on the target audience, women 40-50 years old who are susceptible to breast cancer. Pre-assessment questions were also carried out prior to the participation in the learning plan in order to gauge an idea for participant understanding of breast cancer risks and prevention. Examples of questions used included : “ I understand the risk factors associated with breast cancer.” and “ I know where to buy healthy and nutritious foods.”. A likert scale was then used for participants to rate the degree to which they agree or disagree with the various statements. Additionally, a pre-lesson consultation with a dietician was conducted beforehand in order to allow participants to gain a better understanding of their nutrition prior to the lesson. These pre-assessments were done in correlation to the Health Belief model, in order to get participants reflecting on their current health state and understand their perceived susceptibility and severity of cancer prior to the lessons.

Critical Review Feedback

Following the creation of our presentation, other groups were required to review our presentation and provide feedback on it. The questions that were asked were theory used for lesson plan, objectives of the lesson plan, audience targeted for the lesson, evaluation tools, materials presented, and understanding of the overall lesson. Below is a summarized table of the feedback.

	Rationale	Theory	Objective	Audience	Materials	Evaluation	Time
Strongly agree	27/35	21/35	31/35	31/35	30/35	27/35	27/35
Somewhat Agree	6/35	3/35	4/35	3/35	4/35	5/35	6/35
Neither disagree or agree	0/35	6/35	0/35	1/35	1/35	3/35	2/35
Somewhat disagree	2/35	1/35	0/35	0/35	0/35	0/35	0/35
Strongly	0/35	1/35	0/35	0/35	0/35	0/35	0/35

disagree							
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Summary of Peer Feedback

After reading all the feedback provided, our peers thought we did a good job of outlining our lesson plan along with being professional. Our peer feedback did highlight that they wished we had included more detail on the health belief model. They also stated that the intervention might be too much to put into two days, and it might work better if it was split up into more days.

Lessons Learned

Strengths and Weaknesses - Amelia

After a thorough review of our peer feedback, our peers felt that our lesson plan was easy to follow, detailed, and our desired results section connected well with the health belief model. Our peers also commented on how it was important that we had an oncologist and nutritionist come to educate and speak to our target population on the risk factors of breast cancer and prevention techniques. Some of our peers felt as though our presentation fell short with clearly defining the health theory and providing facts and figures about breast cancer on our slide. Although the health belief model and certain facts and statistics were mentioned in the presentation, they were not directly found on our slide. We could improve this presentation by including more slides on the statistics associated with breast cancer as well as a slide dedicated to defining and providing examples for the health theory. In regards to the infographic for breast cancer prevention, our peers felt our strengths were that it was aesthetically pleasing, informative, and many enjoyed the inclusion of a QR code for our target population to access resources. Our peers felt like our infographic could be improved by limiting the amount of words on the infographic to make it easier to read for our target population and make the infographic seem cleaner, visually.

Future Adaptations

Based on participants’ comments regarding the health theory that was used, one area key area of the lesson plan that should be adjusted is the manner in which the Health Belief Model was discussed. The duration of time explaining the Health Belief Model was seen as subpar and therefore requires additional modification for the future. One possible way to alter the current approach is to give more examples of various stakeholders and how their experiences fit into the Health Belief Model. By providing more concrete examples, we can hope to get more people on board with the lesson plan and the means by which we will carry it out.

Additionally, feedback from a few of our peers suggested that we expand the time previously allotted for the lesson plan. Rather than stick with the initial blueprint of containing the lesson to two days, it would be wise to take the advice of our peers and extend the timeframe so that participants would have a much easier time digesting the information. We now recognize that it can be overwhelming for many to learn a significant amount of information about a disease and then learn how to best prevent within just a couple of days. This is why, moving forward, a possible future adaptation could be to extend the time from just two days to two weeks. The new time frame would allow ample time for participants to get know more about the disease and it’s prevention, while keeping a similar format by having the first week cover background information and context for the disease, and the second week covering nutrition-based prevention.

Another adaptation that could be implemented is to utilize more slides and information on the background and statistics that are associated with breast cancer. Quite a few peers believed that the lesson plan could improve greatly if there was an increase in this domain, and we see how it can significantly help the program. For future implementation, we would provide more statistics on breast cancer to show participants tangible numbers, presenting a much more vivid and real understanding of the circumstance. It would also allow them to more easily

quantify the risks and patterns to watch for moving forward. Overall, modification to this existing part of the program would allow for much more success in the future.

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