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Knowledge, Attitudes, and Behaviors of African American Women regarding Breast Cancer Screening

Lilian Uwuseba
Walden University

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Walden University

COLLEGE OF HEALTH SCIENCES

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Lilian Uwuseba

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Walden University
2010

ABSTRACT

Knowledge, Attitudes, and Behaviors of African American Women
regarding Breast Cancer Screening
by

Lilian Uwuseba

M.S.P.H., Walden University, 2008
M.P.A., Keller Graduate School of Management, 2006
B.A., Stephens College, 1985

Dissertation Submitted in Partial Fulfillment of the
Requirements for the Degree of
Doctor of Philosophy
Public Health

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February 2011

ABSTRACT

Breast cancer is one of the most widespread chronic diseases and a major cause of death among women in the United States. African American women have a higher incidence of breast cancer than their counterparts from other ethnic/racial groups. The purpose of this cross-sectional survey of 126 African American females from the western US metropolitan area was to assess knowledge, attitudes, and behavior with respect to breast cancer manifestation, detection services, and the role of mammography in breast cancer prevention and control. The health belief model guided this study. A 41-item, ethnically sensitive, self-administered, and gender-specific instrument, the Champion Revised Susceptibility, Benefits, and Barriers Scale for Mammography Screening, was used in this study. Analysis of variance, the Scheffe post hoc tests, and Fisher's exact test were used to analyze the data. The results showed that all but three participants (97.6%) reported having had breast cancer screening; almost all of the participants were compliant and answered the knowledge question. The findings also showed that the women with high levels of education reported lower benefits of mammography scores and lower barriers to mammography scores; and higher cues to action scores. Income was not significantly related to attitude toward breast cancer screening. The implication for positive social change is that these results may help to facilitate continued development of intervention strategies to encourage African American women to utilize early breast cancer detection services.

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DEDICATION

This dissertation is dedicated to my family: Chris, Henrychris, Fegor, Jiro, and Ogaga. They provided me with great support by sacrificing and standing by me throughout the dissertation process. I am eternally grateful to them for keeping me grounded and always optimistic, which helped me to realize this dream.

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joy, reaffirming my belief in God always. You are so intelligent, and I am always proud to be called your mom. The five of you bring me joy and inspiration, and those are the reasons my life is filled with so much happiness.

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CHAPTER 1: INTRODUCTION TO THE STUDY

Introduction

Bray, McCarron, and Parkin (2004) reported that most cancer diagnosis is related to breast cancer, the most commonly diagnosed cancer among women worldwide. Similarly, the American Cancer Society (ACS, 2008b) reported that, among women in the United States, breast cancer is the leading cause of death and the second-leading cause of all cancer-related deaths. Breast cancer risk is greater in women who have a paternal or a maternal family history of the disease; however, about 70–80% of women with breast cancer have no family history of the disease (ACS, 2007). White women have a slightly higher chance of getting breast cancer than black women, whereas African American women have a higher risk than Asian, Hispanic, and American Indian women of dying from the disease (ACS, 2007). American Indian women have the least risk of developing breast cancer.

Background of the Problem

The ACS (2007) reported that after the age of 40, White women have a higher incidence of breast cancer than African American women, whereas African American women under the age of 40 have an increased rate of breast cancer and a greater chance of dying from this disease at all ages. The ACS also reported that between 1975 and 1999, breast cancer yearly death rates among all races increased by 0.4%; however, from 1990 to 2004, the death rate declined yearly by 2.2%, which might have been the result of early breast cancer detection services and better breast cancer therapeutic protocols. Moreover, the increased rate of advanced-stage breast cancer found at diagnosis may be

the result of inadequate or the complete lack of health insurance coverage for a variety of breast cancer preventive measures and treatments (ACS, 2007). Low-income patients with breast cancer have a lower 5-year survival rate than patients with high incomes, regardless of the disease stage at diagnosis (ACS, 2007). Similarly, factors such as additional illness, lower socioeconomic status (SES), insufficient health care access, and discrepancies in treatment may be responsible for the difference in survival rates among lower- and higher-income patients with breast cancer for African American and White women.

Allday (2007) mentioned that a genetically emerging tumor that may be linked to breast cancer among African American women might be a contributory factor to increased mortality from the disease among this population of women. According to the Surveillance Epidemiology End Results (SEER) of the National Cancer Institute (NCI, 2007), an estimated 182,460 women were diagnosed with breast cancer in 2008 and that 40,480 died from the disease that same year. . From 2001 to 2008, the median age for women diagnosed with breast cancer was 61. No women under the age of 20 were diagnosed with breast cancer. An estimated 1.9% of women ages 20 to 30 were diagnosed with breast cancer, 10.6% of women ages 35 to 44, 22.4% of women ages 45 to 54, 23.3% of women ages 55 to 64, 19.8% of women ages 65 to 74, and 16.5% of women ages 75 to 84 (NCI, 2007).

According to NCI (2007), the age-adjusted incidence rates based on race for diagnosed cases between 2001 and 2005 in the 17 SEER geographic areas were as follows: 126.1 per 100,000 women of all races, 130.6 per 100,000 White women, 117.5

per 100,000 African American women, 89.6 per 100,000 Asian/Pacific Islander women, 75.0 per 100,000 American Indian/Alaska Native women, and 90.1 per 100,000 Hispanic women. From 2001 to 2005, the median age at death for a breast cancer patient was 69. There were no breast cancer-related deaths for women under the age of 20. Women between the ages of 20 and 30 accounted for 1.0% deaths, 6.4% for women ages 35 to 44, 15.3% for women ages 45 to 54, 19.6% for women ages 55 to 64, 20.1% for women ages 65 to 74, 22% for women ages 75 to 84, and 14.7% deaths for women ages 85 years and over.

The NCI (2007) also reported that death rates by race from breast cancer among women in the United States between 2001 and 2005 showed that the highest percentage (33.5 per 100,000) was among African American women. Women of all races accounted for 25.0 per 100,000, compared to 24.4 per 100,000 White women, 12.6 per 100,000 Asian/Pacific Islander women, 17.1 per 100,000 American Indian/Alaska Native women, and 15.8 per 100,000 Hispanic women. Data from the NCI's SEER report showed that an estimated 2,477,847 women have survived breast cancer in the United States. This number comprised women who were alive as of January 1, 2005, and who were diagnosed with breast cancer before January 1, 2005. It also included women with active breast cancer and those who had been cured of the disease.

Litaker and Tomolo (2007) concluded that breast cancer screening impacts women economically and socially, and that the function of the health care system affects the effectiveness and access of breast cancer screening because rich communities with better health care systems can offer a higher level of care and greater availability. The

reasons women do not seek screening can be linked to cost, the lack of transportation, a lack of access to and confidence in care providers, insufficient screening knowledge, and patient perception of breast cancer as shameful (Litaker & Tomolo, 2007).

The Bayview area of San Francisco has a high concentration of toxic wastes, a situation that may predispose African American women to developing breast cancer (Creative Work Fund, 2003). Katz (2006) reported that African American women in the Bayview Area have higher incidence of breast cancer than women of other racial groups. This study will help to fill the gaps in the knowledge, attitudes, and behavior regarding breast cancer screening of African American women living in the Bayview area of San Francisco. The results also may help health care providers to design appropriate intervention programs for these women to reduce the mortality rate.

Statement of the Problem

Breast cancer is one of the most widespread chronic diseases and a major cause of death among women in the United States. The ACS (2008b) mentioned that although White females have a higher incidence of breast cancer than African American women, the latter population of women have a higher mortality rate. Furthermore, even though the breast cancer mortality rate has decreased for White women, the rate of survival for African American women has not declined (Agency for Healthcare Research and Quality, 2009). Behavioral and psychosocial variables such as knowledge, attitudes, and behavior are necessary to know the rationale for the lack of breast cancer screening experience among African American women. Despite numerous studies on these variables, little research has been conducted specifically on the utilization of mammography among

African American women in the San Francisco Bayview area. This study assessed the knowledge, attitudes, and behavior of African American women living in the Bayview area of San Francisco toward breast cancer manifestation and the role of mammography in breast cancer prevention and control. Data collected for the study were used to appraise the relationship of each variable to breast cancer screening. The results of this study will help health care professionals develop needed intervention plans for African American women in the Bayview area of San Francisco to utilize breast cancer screening..

Need for the Study

The literature review revealed that although studies on breast cancer have been conducted among African American women in recent years, few data exist on studies of breast cancer screening among African American women in the San Francisco geographic area. Katz (2006) reported that the death rates for African American women living in the Bayview area of San Francisco are higher than the death rates for women from other racial groups. Fish (2009) reported that between 2003 and 2007, the incidence for age-adjusted invasive breast cancer rates among African American women ages 40 and older in San Francisco was 273.9 from a population of 71,254 (rates were per 100,000 and age-adjusted to the 2000 U.S. standard population) compared to 308.4 among White women from a population of 385,174.

Fish (2009) also revealed an incidence rate of 222 for Hispanic women from a population of 101,516 and an incidence rate of 199.4 for Asian/Pacific Islander women

from a population of 357,019. The mortality rate for breast cancer among African American women in San Francisco during the same period was 74.2 (rates were per 100,000 and age adjusted to the U.S. standard population) compared to 58.1 for White women, 36.3 for Hispanic women, and 31 for Asian/Pacific Islander women.

Accordingly, Fish identified the incidence rate for invasive breast cancer for African American women in the Bayview area of San Francisco from 1998 to 2000, when the last census was conducted, as 118.5 from a population of 24,355 (rates were per 100,000 and age adjusted to the U.S. standard population). The mortality rate for the same population and age group in San Francisco from 2003 to 2007 was 33.7 from a population of 138,640.

Therefore, if African American women die more often than women from other ethnic groups from breast cancer, it would appear that the incidence and mortality of breast cancer and its risk factors might be more common among African American women living in the geographic area. For breast cancer to be controlled effectively among African American women, sufficient preventive information packages about the disease must be adequately circulated.

Smith-Bindman et al. (2006) conducted a study of seven mammography registries, including the San Francisco Mammography Registry. They reported that over 30% of African American women with breast cancer are insufficiently screened compared to white women who were less than 15%. They recommended continuous research on breast cancer and its risk factors, breast cancer screening techniques, and

health education disease prevention programs to control the high incidence, prevalence, and mortality rates of breast cancer among minority populations.

Research Questions and Hypotheses

Research Questions

The following research questions were explored for the study:

1. Do the attitudes variables have a relationship to compliance with breast cancer screening among African American women aged 40 to 65 years living in the Bayview area of San Francisco?
2. Does knowledge of breast cancer screening among African American women aged 40 to 65 years living in the Bayview area of San Francisco relate to their behavior toward breast cancer screening?
3. Does perceived barriers and attitudes regarding breast cancer screening among African American women aged 40-65 years living in the Bayview area of San Francisco relate to their demographic characteristics?

Null Hypotheses

After a thorough review of existing literature on the subject and the development of a conceptual framework, the following null hypotheses were formulated for the study:

H_{01} : Attitudes have no significant relationship toward breast cancer screening and behavior of African American women living in the Bayview area of San Francisco.

H_{02} : African American women living in the Bayview area of San Francisco who are not knowledgeable about breast cancer screening will not utilize mammogram tests.

H_{03} : For African American women living in the Bayview area of San Francisco, their perceived barriers of breast cancer screening would not be related to their demographic characteristics.

Purpose of the Study

The purpose of this study was to assess the knowledge, attitudes, and behaviors of African American women living in an African American neighborhood of San Francisco's Bayview area regarding breast cancer screening. For this study, the dependent variable was the behavior regarding breast cancer screening, and the independent variables were perceived susceptibility, perceived severity, perceived barriers, perceived benefits, action, and self-efficacy, and knowledge about breast cancer screening. The theoretical framework of the study was the health belief model (HBM).

The collected data were used to assess the relationship of each variable to breast cancer screening compliance. The aim of this study was to encourage health care professionals to design breast cancer screening programs for African American women living in the Bayview area of San Francisco in an effort to decrease the incidence and death rate of breast cancer.

Theoretical Framework

The HBM was utilized as the theoretical framework to guide this study. Its intervention strategies were used to examine the attitudes, knowledge, and behavior of African American women relating to breast cancer screening compliance. Rosenstock (as cited in Wood, 2008) suggested that the HBM was based on the works of various social psychologists in the 1950s to explain why persons did not participate in health care prevention activities, such as periodic preventive screening. Bellamy (2004) described the HBM as one way to identify individuals' anxieties about their health, their ability to follow medical directives, and their relationship with health care providers. Particularly, it involves health beliefs dealing with perceptions of the dangers of the disease, effects and benefits of early detection, and impact of the person's knowledge regarding diagnosis and treatment. According to the HBM, the more those individuals understand the dangers of breast cancer, the more likely they will be willing to modify their behavior to obtain preventive treatment (Wood, 2008). Wood stated that an understanding of the danger of a health condition is regarded as perceived severity, whereas perceived susceptibility is an understanding of how likely a disease will occur. Perceived susceptibility and severity are linked to understanding the danger of not seeking treatment.

Champion (1999) maintained that perceived susceptibility has to do with a woman's thinking that there is a chance that she will develop breast cancer in the near future; perceived beliefs have to do with the woman's understanding that receiving a mammogram is beneficial in preventing breast cancer because early detection leads to good treatment and the likelihood of survival; perceived barriers include the cost of mammography screening. Champion mentioned that understanding the increased benefits

of screening, along with understanding of barriers, may be theoretically linked.

Understanding not only the benefits of mammography but also the barriers to obtaining it are important in understanding mammography behavior and that a greater benefit is associated with a high screening rate.

Definitions of Terms

Following are the definitions of terms used in this study:

Action: Action involves participating in educational programs for breast cancer to obtain information on breast cancer prevention.

Attitude: Attitude is a “manner of showing one’s feelings or thoughts” (*Webster’s New World Dictionary*, 2003, p. 41).

Awareness: Awareness relates to the knowledge of breast cancer screening methods, specifically mammograms.

Behavior of mammogram screening: Lin et al. (2008) identified four items of the Champion Scale utilizing individual documentation: have received a mammogram, within a year received a mammogram, outcome of mammogram, and planning on receiving mammogram in 6 months (if not compliant). Frequency counts and percentages were used to document outcomes.

Benign breast lump: A benign breast lump is an abnormal growth in the breast that does not endanger life. Some benign breast lumps may increase the risk of developing breast cancer (ACS, 2008c).

Breast cancer: Breast cancer is a cancerous tumor originating in breast cells (BreastCancer.org, 2008).

Cancer: Cancer cells are cells in a particular part of the body that start to grow uncontrollably. Cancer is a term used to describe cell growth that is abnormal and results from chromosomal damage (A. H. Ko, Dollinger, & Rosenbaum, 2008).

Carcinoma: Carcinoma is a type of cancer that starts in the tissue lining of the body, such as in the breast or skin (A. H. Ko et al., 2008).

Carcinoma in situ: Carcinoma in situ is the beginning stage of cancer seen at the cells where it originated from (NCI, 2009b).

Ductal carcinoma in situ: Ductal carcinoma in situ are unusual breast cells, including milk duct lining (BreastCancer.org, 2008).

Health belief model (HBM): The HBM provides an understanding and prediction of health behaviors based on individual attitudes and beliefs (Glanz, Rimer, & Lewis, 2002).

Inflammatory breast cancer: This type of cancer is an uncommon breast cancer. The breast appears red, inflamed, and warm. The skin of the breast appears orange in color, and the breast may have a lump (BreastCancer.org, 2008).

Knowledge: Knowledge is described in Webster's (2003) as "the fact or state of knowing, range of information or understanding" (p. 360).

Lobular carcinoma in situ (LCIS): LCIS is unusual cell growth in certain areas that increases the risk of invasive breast cancer (BreastCancer.org, 2008).

Mammogram: A mammogram is an X-ray that provides a detailed look of the breast. Even though mammograms are utilized for screening, mammograms also can be utilized if problems exist in the breast (a diagnostic mammogram). In younger females,

mammograms are sometimes not effective because young females' breasts are dense, which may keep tumors out. The same applies to women who are pregnant and those who are breast-feeding (ACS, 2008c).

Metastasis: The distribution of cancer from a particular part of the body to another part of the body through the blood or the lymph system is known as metastasis (A. H. Ko et al., 2008).

Mortality: Mortality is the number of cancer deaths that occur over a particular time (NCI, 2009b).

Normal breast structure: The female breast consists of glands that produce breast milk. These glands are comprised of lobules and ducts (little tubes), the nipple, fatty and connective tissues, blood, and lymph vessels. Some breast cancers start in the cells lining the ducts or lobules, and others start in other tissues (ACS, 2008c).

Perceived barriers: Perceived barriers are the lack of health care coverage and financial resources to receive a mammography. Perceived barriers of getting a mammogram for this study as reported by Lin et al. (2008) were estimated with 21 items of the Champion Scale using a Likert scale. Scores ranged from 4 to 70. A high score showed an increase in perceived barriers.

Perceived benefit: Adopting a new healthy behavior and believing that it will help to decrease the chances of breast cancer is a perceived benefit. For the purpose of this study, perceived benefits of mammography were estimated with seven items of the Champion Scale using a Likert scale. Scores ranged from 4 to 25. A high score showed an increased perceived benefit (Lin et al., 2008).

Perceived severity: Women who want a healthy lifestyle will comply with ACS (2003) guidelines for mammography. For this study, perceived severity was estimated with seven items of the Champion Scale using a Likert scale. Scores ranged from 7 to 35 (Karayurt, Dicle, & Malak, 2009).

Perceived susceptibility: Perceived susceptibility refers to the knowledge and belief of how breast cancer screening will affect women's lives (McCormick-Brown, 1999). Perceived susceptibility in this study, according to Lin et al. (2008), was estimated with three items on the Champion Scale on a Likert scale. Scores ranged from 3 to 13. A high score showed an increased perceived susceptibility.

Risk factors: For the purpose of this study, risk factors were conditions, family history, age, and lifestyle factors that can contribute to the development of breast cancer (Centers for Disease Control and Prevention [CDC], 2006).

Sarcoma: Sarcoma refers to cancers that originate in tissues that are linked, for example, fatty tissue or blood vessels (NCI, 2009a).

Self-efficacy: Self-efficacy is "an individual's ability to participate in a specific behavior that is important" so as to be able to adopt a new positive behavior (Ham, 2006, p. 114). Self-efficacy for this study was estimated with 10 items of the Champion Scale using a Likert scale. Scores ranged from 10 to 50 (Karayurt et al., 2009).

Assumptions of the Study

The participants would respond accurately to the questions in the survey instrument. The individuals completing the questionnaire were the persons for whom the questionnaire was intended. The questionnaire was precise, understandable, and

specifically directed to African American women. Certain members of the target population had undergone mammogram tests in the past.

1. The survey instrument for breast cancer screening awareness was valid and reliable when administered to the selected African American female sample.
2. The survey questionnaire method was the most appropriate way of collecting the data.

Limitations of the Study

1. This study utilized a survey questionnaire to collect the data. Recall bias may have existed in that the knowledge, attitudes, and behaviors reported by the respondents may have provided risks in terms of the precision of the data regarding their ability to remember former events, behaviors, and expenses.
2. There was reporting bias on the part of the respondents regarding their inability to provide the information required, and there was social desirability bias in that the respondents may have provided information that was socially acceptable..
3. There was no systematic plan to check whether the women had, or had not, received mammograms before participating in the study.
4. Because of the differences in the ages of the participants, the women's knowledge of breast cancer and breast cancer screening may have varied among the age groups

Delimitations of the Study

Only women from a population of African American women living in the Bayview area of San Francisco were selected to participate in this study.

This study was limited to a sample of 126 African American females ages 40 and older. All of the women were living in the Bayview area of San Francisco at the time of the study.

Significance of the Study

This study of breast cancer screening by African American women living in the Bayview area of San Francisco is important because there has been a high incidence and prevalence of breast cancer-related deaths in this area of San Francisco (Katz, 2006), and for the following reasons:

1. Breast cancer is the leading cause of death for African American women living in the Bayview area.
2. African American women do not utilize breast cancer screening, especially mammogram.
3. In reviewing the literature there was no identification of any major studies in recent years of breast cancer screening among African American women living in the Bayview area.
4. African American women compared to women of other races die more often from breast cancer.
5. This study will add to the current understanding of breast cancer screening.

6. Understanding the women's attitudes and behaviors toward breast cancer may help to identify the reasons for their lack of breast cancer screening.
7. The findings can help institutions to identify and develop better intervention strategies for African American women by increasing their awareness and understanding of the importance of breast cancer screening.
8. This study will contribute to the gap in numerous studies on African American women who have provided generalized information that may not be applicable to all African American women regarding breast cancer screening.
9. There has been a lack of effort to reduce the breast cancer rate among minority groups.

Nahcivan and Secginli (2007) maintained that detecting breast cancer at its onset is necessary to decrease the death rate. Therefore, in an effort to decrease the incidence and death rate of breast cancer, it is important that women utilize such screening methods as breast self-examination (BSE), clinical breast examination (CBE), and mammography. A monthly BSE is an inexpensive way to detect the onset of breast cancer that also may be incorporated with mammography and CBE (Norman & Brain, 2005, as cited in Nahcivan & Secginli, 2007). By utilizing an instrument developed by Champion (1999) and which has been tested and proven reliable and valid on African American women, this study will help to further the understanding of the attitudes and behaviors of African

American women living in the Bayview area of San Francisco toward breast cancer manifestation, as well as the complications regarding the lack of early screening intervention practices.

Summary

The purpose of this study was to assess the knowledge, attitudes, and behaviors with regard to breast cancer screening of a sample of African American women residing in an African American neighborhood in the Bayview area of San Francisco by utilizing the HBM. This information will help public health in the Bayview area of San Francisco and other health systems to understand African American women's issues regarding breast cancer prevention and health promotion. To decrease breast cancer mortality, the emphasis must be on early detection. The ACS (2008a) recommended a BSE for women ages 20 and under, a CBE for women ages 20–39 every 3 years, and yearly examinations for women age 40 and older. For women ages 40 and older, the ACS also recommends a yearly mammography. The U.S. Preventive Services Task Force (USPSTF, 2009) recommended that women in their 40s not use mammogram screening, but discuss with their physicians whether mammogram is right for them. The CBE and mammography are provided in hospitals by professionals; the BSE is less costly and can be performed by women in the privacy of their own homes (Okobia, Bunker, Okonofua, & Osime, 2006).

By incorporating the principles of community-based research, this study attempted to enhance current knowledge of the issues associated with breast cancer screening and create the right plan of action to address issues related to breast cancer screening, such as lack of mammogram utilization. The analysis of the collected data will

be beneficial to public health agencies, community organizations, educational organizations, and health care organizations (Detroit Community Academic Research Center, 1996). This study will enhance collaboration among public health entities and organizations to develop a plan of action to encourage women to receive regular mammograms. This study aimed to provide public health officials with insight about the impact of the attitudes, knowledge, and behavior of African American women toward breast cancer screening.

Chapter 2 discusses the literature pertaining to the knowledge, attitudes, and behaviors of African American women toward breast cancer screening. Chapter 3 describes the research design, instrumentation, sampling procedures, and data analysis protocol. Chapter 4 presents the research findings and analyses. Chapter 5 focuses on the results, conclusions, and recommendations for future research that will help to enhance breast cancer screening.

CHAPTER 2: LITERATURE REVIEW

Introduction

The purpose of this study was to assess the knowledge, attitudes, and behaviors of a sample of African American women residing in the Bayview area of San Francisco regarding breast cancer screening. This chapter provides highlights regarding knowledge and impact of breast cancer screening methods as well as mammogram screening experiences. The literature review focuses on African American women, breast cancer, and screening. Databases such as Sage Online Journals, Medline, Academic Search Premier, and CINAHL were searched during the review. The search strategy spanned 2001 to 2009 to obtain information regarding breast cancer screening, breast cancer, knowledge, attitudes, and behaviors toward breast cancer screening protocols. The methods employed in the studies were reviewed to gain more knowledge about their design and findings.

I retrieved 70 articles from Academic Search Premier, 70 articles from CINAHL, 33 articles from Sage Online Journals, and 20 articles from Medline. Of all the articles reviewed, 25 were discussed in this literature review that had related methods to this study. Studies related to method focused on design, methods, and information relating to breast cancer screening. Studies related to utilization focused on different methods to examine breast cancer and screening. Keywords used were *African American, Arab, minority, Chinese, Korean, and Latina; women, breast cancer screening; breast cancer; knowledge, attitudes, behaviors, mammography screening, breast self-examination, and*

clinical breast examination. The topics that will be covered in this section are reviews on literature related to this study

Review of the Literature

According to the NCI (2007), death rates by race from breast cancer among women in the United States between 2001 and 2005 showed that the highest percentage (33.5 per 100,000) was among African American women. Women of all races accounted for 25.0 per 100,000, compared to 24.4 per 100,000 White women, 12.6 per 100,000 Asian/Pacific Islander women, 17.1 per 100,000 American Indian/Alaska Native women, and 15.8 per 100,000 Hispanic women. Data from the NCI's SEER report showed that an estimated 2,477,847 women have survived breast cancer in the United States. This number comprises women who were alive as of January 1, 2005, and who were diagnosed with breast cancer before January 1, 2005. It also includes women with active breast cancer and those who have been cured of the disease.

In 1987, the CDC reported that White women received more mammograms than other races and that in 2003, both White and African American women received mammograms, whereas American Indian/Alaska, Asian/Pacific Islander, and Hispanic women did not have a significant number of mammograms (as cited in CDC, 2006).

African American women had an excess mortality rate of over 30% in 2000 than White women (ACS, 2003). Among African American women, the breast cancer death rate is higher than it is among White women, even though African American women do not have a high incidence rate (ACS, 2003). In 2000, the percentage of African American women ages 40 and older who had mammography increased to 66.7% within a year, even

though educated African American women were reported to have been tested more often during the same period (ACS, 2003).

Studies Related to the Method

Odusanya (2001) used self-administered surveys with a cross-sectional design in a study to assess the knowledge, attitudes, and practices of female schoolteachers in Lagos, Nigeria, regarding breast cancer. Of the 200 teachers who responded to the survey, 80% were aware of the dangers of breast cancer, 50% were aware that noticing a lump in the breast signifies the development of breast cancer, and more than 60% reported using BSE. The researcher recommended that the participants receive more education and information on breast cancer because most of them lacked breast cancer awareness.

Lawvere et al. (2004) conducted a study to determine approaches to breast cancer screening among nurse practitioners (NPs). The researcher used self-administered surveys using a cross-sectional design to investigate knowledge, attitudes, and self-reported behaviors that were associated with cancer screening and prevention among primary care clinicians in western New York. The study revealed that of the 175 NPs who responded, most were female, 75% were below the age of 50, most regarded themselves as White, 41% had board certification, and 71% were employed full time. The results also showed that over half of the NPs who responded mentioned that women who are at risk by age 20 should use CBE and that starting at age 35; women also should start mammogram screening (Lawvere et al., 2004). Over half of the NPs mentioned that women at risk need to have yearly mammogram screenings beginning at 40 years of age.

The researchers recommended that more studies be conducted into ways to get and implement screening for preventive purposes by NPs.

Farmer, Reddick, D'Agostino, and Jackson (2007) conducted a study on the psychosocial correlates of mammography screening among older African American women. They utilized a cross-sectional survey method on African American women residing in central North Carolina who earned less income and who resided in low-income housing regarding their beliefs and practices of breast cancer screening. The questionnaire consisted of two open-ended questions developed to determine how the women would want to get information about breast cancer and breast cancer screening.

The theoretical framework for Farmer et al.'s (2007) study was the HBM, which was examined by using the Revised Susceptibility, Benefits, and Barriers Scale for Mammography Screening (CRSBBSMS; Champion, 1999). Farmer et al. used a sample of 804 women were used to validate the revised scale. The questionnaire involved the following subscales associated with breast cancer and mammography screening: Susceptibility, Seriousness, Benefits, and Barriers. The results showed that the benefits and barriers to mammography screening of the HBM varied greatly between the women who had mammograms and those who did not. The women who had utilized mammogram previously within a year identified more perceived benefits of mammography screening and fewer perceived barriers. The women who were already using mammogram had an increased level of perceived social support.

Farmer et al. (2007) used stepwise multivariable regression analyses to determine the factors related to benefits, barriers, and social support. The researchers reported that

“dispositional optimism and social support” (p. 120) were linked to how the benefits of mammography screening were perceived and that education and fatalism in cancer were associated with mammography screening barriers. The result also showed that the women who had a positive approach to life identified more benefits of, more social support for, and fewer barriers to mammography. Farmer et al. suggested that there is a need for more programs to provide education to increase women’s knowledge about breast cancer screening preventive measures. They also concluded that insufficient awareness of breast cancer screening, specifically mammography, among African American women is an important factor in how they perceive mammogram screening.

Memis, Balkaya, and Demirkiran (2009) conducted a study to identify the knowledge, attitudes, and behaviors of nursing and midwifery students in Turkey regarding BSE. They gave questionnaires comprised of 46 questions to 244 randomly chosen students. The first section of the questionnaire involved the ages and marital and school status of the participants. The second section had 10 closed-ended questions regarding prior BSE knowledge and how, where, and when BSE is used. The third section had 8 mostly closed-ended questions about the students’ behavior toward BSE. The fourth section had 21 statements regarding their attitudes toward BSE.

The results showed that of the 244 students who volunteered to participate in the study, most of them reported knowing BSE from school, but not knowing much about the use of BSE. The new students were positive toward BSE. As the students advanced in their education, their views about BSE changed positively. In addition, most of the students reported not knowing how to do a BSE, which affected their BSE usage. Memis

et al. (2009) recommended that school curriculums for nurses and midwives be revised to enhance “interactive teaching methods, case studies” (p. 45) so that the students could gain more knowledge about BSE.

Okobia et al. (2006) investigated the knowledge, attitude, and practices of Nigerian women toward breast cancer. By utilizing a cross-sectional study comprising 1,000 women, they found that the participants’ knowledge of breast cancer was influenced by education and employment. The results showed that the women with a high school education and who had specialized jobs in nursing and teaching scored higher on knowledge than those women who were employed in nonspecialized jobs. Okobia et al. found that the women had little knowledge of breast cancer and utilization of BSE and CBE. They concluded that education is very important in helping Nigerian women to determine the “level of knowledge and health behavior” (p. 2).

Sadler et al. (2007) studied the knowledge, attitudes, and screening practices toward breast cancer of a sample of African American women, ages 20–94, from San Diego, CA. The results showed that among the 1,055 women studied, 31% of them reported practicing BSE monthly, and 57% who were 40 and older reported practicing BSE; 30% also mentioned having received a mammogram within the last year. The results showed that most of the participants had little knowledge of breast cancer and breast cancer screening.

Ham (2006) utilized a self-administered questionnaire to determine that the ages of a sample of Korean women were related to mammography experience and that income positively influenced the women’s ability to receive mammography. The results also

showed that the women with very little income were unable to afford mammography screening because of the high cost. Ham recommended more education about the barriers to mammography screening and interventions that will be helpful in decreasing the perceived barriers and increasing mammography among Korean women.

Parsa, Kandiah, Zulkefli, and Rahman (2008) conducted a study to determine the knowledge and behavior regarding breast cancer screening among a sample of 425 teachers from 20 middle schools in Selangor, Malaysia. Parsa et al. employed a self-administered questionnaire to collect the data. They reported that the teachers had little knowledge about breast cancer and breast cancer screening. The findings also showed that among the 425 women who participated in the study, 19% of them utilized BSE, 25% utilized CBE, and 13.6% utilized mammography frequently. Parsa et al mentioned that the women's knowledge of breast cancer was related to BSE and their behavior toward breast cancer screening was related to whether the women read or heard about breast cancer screening and how often they visited their family doctors.

Yucel et al. (2004) studied breast cancer screening among women awaiting mammography. They used a cross-sectional survey design with a sample of women who were waiting to have mammography examinations from the mammography unit in the Department of Radiology, Afyon Kocatepe University, Turkey, between October 2002 and April 2003. Of the 498 patients who were examined, 200 of them did not participate in the study because they either did not want to answer questions or simply did not want to participate. One hundred and fifty of these patients could not read or write and did not want to participate in the study, and the other 50 were disqualified because they were

over the required age range of 29 to 79. Overall, 298 women participated in the study involving true/false and multiple-choice questions.

Yucel et al. (2004) reported that most of the participants used BSE, but not mammography screening. According to the researchers, the reason for the women not utilizing mammography could have been related to cost, especially for those who could not pay for the mammography screening. They also reported that another reason for the lack of mammography screening by the women was the pain associated with the effect of the radiation that the women would receive during the screening.

Lin et al. (2008) conducted a study to assess breast cancer and mammography screening beliefs among Chinese American immigrants. They asked 100 Chinese American women who were born outside the United States ages 40 and above to complete a self-administered questionnaire. The questionnaire for the study investigated attitude, practices toward breast cancer screening, perceived susceptibility, perceived benefits, barriers, and cultural beliefs. The participants were members of Asian community centers and churches in Portland, Oregon. Lin et al. utilized the HBM as their theoretical framework.

The findings showed that perceived barriers played a significant role in that the greater the barrier, the greater was the likelihood that the women would not utilize mammography screening (Lin et al., 2008). On the other hand, the rate of mammography use did not rise, even though the women were aware of the benefits. Lin et al. concluded that the study would increase extant information regarding “the reliability and validity of measures on Chinese American women belief about breast cancer screening” (p. 866).

Kang, Thomas, Kwon, Hyun, and Jun (2008) studied the stages of change regarding Korean women's attitudes and barriers toward mammography screening. The study method and design involved a cross-sectional study using a convenience sample of 328 Korean women ages 30 and older who had not had any previous breast cancer. The women were from three South Korean cities: Seoul, Gyeonggi, and Jeju. The data were collected from the responses to a self-administered questionnaire. The results showed that the women reported that if there are no symptoms for breast cancer, there is no need for a breast examination. Kang et al. concluded that the lack of a breast examination could be related to insufficient information, lack of time, shame, phobia, and pain. Table 1 summarizes the literature review relating to methods on knowledge, attitudes, and behaviors to breast cancer screening.

Table 1

Literature Related to Methods

Researcher	Year	Design	Sample	Survey	Remarkable findings	Conclusions
Odusanya	2001	Cross-sectional	200	Survey	The participants lacked knowledge about breast cancer	Education is relevant in assisting female teachers to gain knowledge of breast cancer.
Lawvere et al.	2004	Descriptive cross-sectional	175	Survey	Over half of the respondents mentioned women at risk need mammogram screening annually beginning at age 40.	Over half of the respondents concurred with most of the breast cancer screening mechanisms.
Farmer et al.	2007	Cross-sectional	198	Survey	Women who have a positive approach to life recognize lots of benefits and fewer barriers.	Insufficient awareness of breast cancer screening, specifically mammogram screening among African American women, is relevant to how they perceive mammogram screening. The authors also concluded there is insufficient social support to help reduce compliance to mammography screening.
Memis et al.	2009	Questionnaire	20	Survey	Most of the students	Training in nursing and

Table 1 Cont'd

Researcher	Year	Design	Sample	Survey	Remarkable findings	Conclusions
					reported not having knowledge on how to perform BSE which affected BSE usage,	midwifery positively influenced students' knowledge, attitudes, and behavior toward BSE.
Okobia et al.	2006	Cross-sectional interviewer-administered questionnaire	1,000	Survey	Women with high school education or better who have specialized jobs scored better on knowledge compared to those in nonspecialized jobs. The result also revealed that women residing in Nigeria have very little knowledge of breast cancer and screening techniques such as BSE, CBE, and mammogram.	Education is relevant in assisting Nigerian women to recognize knowledge and health behavior.
Sadler et al.	2007	Randomized controlled education trial	1,055	Survey	Even though the women knew how dangerous breast cancer is and the relevance of onset identification of breast cancer, few women mentioned having enough knowledge about breast cancer.	There is a great need for constant information and education on breast cancer and screening for the population. Table 1 Cont'd
Ham, O.K.	2006	Cross-sectional	310	Survey	The variables related to	If women are to practice frequent

Researcher	Year	Design	Sample	Survey	Remarkable findings	Conclusions
		design			mammography practice of participants were age, self-efficacy, and perceived susceptibility.	mammography screening, health care providers need to utilize workshops on mammography screening as a way to provide information and education on breast cancer screening, which is expected to affect the women positively in terms of how they perceive breast cancer screening.
Parsa et al.	2008	Cross-sectional design	425	Survey	Teachers had little knowledge about breast cancer and breast cancer screening	Women's knowledge of breast cancer is related to BSE, and their behavior toward breast cancer screening was related to how often they visited their family physician. Table 1 Cont'd
Yucel et al.	2004	Cross-sectional design	298	Survey	Over 96% of the participated were aware that women need to have regular mammography screening;	Awareness regarding breast cancer and screening mammography was average among women who were waiting for mammography.
Lin et al.	2008	Descriptive study	100	Survey	Over 86% were aware that utilizing mammography helps in	The instruments used in the study will help to

Researcher	Year	Design	Sample	Survey	Remarkable findings	Conclusions
Kang et al.	2008	Cross-sectional study	Convenience sample of 328 Korean women	Survey	<p>detecting cancer.</p> <p>Result showed that with the HBM, perceived barriers played a great part in that the greater the barrier, the likelihood of the women not utilizing mammography screening.</p> <p>Results revealed women reported if there are no symptoms for breast cancer then, there is no need for breast examination</p>	<p>design appropriate programs for Chinese American women regarding breast cancer screening.</p> <p>Promote breast cancer screening by educating on the positive effects of adopting regular exercise</p>

Studies Related to Breast Cancer Detection and Awareness

Su, Ma, Seals, Tan, and Hausman (2006) conducted a study on breast cancer early detection among a convenience sample of 111 Chinese women in the Philadelphia area. The study explored the women's breast cancer awareness, attitudes, and knowledge regarding onset detection. The results showed that half of the women had done BSE, over half of the women age 40 had done CBE, and three quarters of the women had received a mammogram. The results also showed that the women who obtained information from their physicians influenced how often they received CBE. Su et al. concluded that the Chinese women in their sample had insufficient cancer screening and treatment measures. They recommended that more information and education be disseminated about breast cancer and breast cancer screening, and that doctors receive more cultural competency education to help them provide better services for minorities and those in low-income and "underserved communities" (p. 518).

Darnell, Chang, and Calhoun (2006) reported that faith-based approaches to deal with racial and ethnic disparity in breast cancer screening are growing and that most church-affiliated programs are efficient in enhancing mammography screening. Some African American women regard the church as important in their community life, and Latina women view the church as important in providing cultural education. The objective of the study was to determine whether knowledge about breast cancer and participation in learning activities influenced the likelihood of the women receiving a mammogram in the past year.

The method was an intervention design involving Reach Out, an observational study conducted in Chicago (Darnell et al., 2006). Reach Out, a faith- and community-based partnership, enhances the ability of African American and Latina women to receive mammograms. The participants included 9 African American churches and 8 organizations for Latino Catholic parishes. A convenience sampling strategy was utilized to select 17 participating churches with congregations comprised mainly of African Americans and Latinos. The participants were African American women and Latinas ages 40 and older who were members of their churches.

Darnell et al. (2006) found a significant difference in race and ethnicity for screening. For the African American women, mammography utilization rate in the past year was 72%; for the Latinas, it was 41%. The Latinas were much younger, had low-income levels, had little education, and had a greater chance of being married than the African American women. The African American women who were informed by their churches about mammograms four times or more were 15 times more likely to report mammogram utilization in the previous year than those who were informed only once. Darnell et al. concluded that faith-based programs may be efficacious in incorporating a systematic plan to increase awareness about the necessity of early detection for breast cancer.

Earp et al. (2002) suggested that older African American women have a higher breast cancer mortality rate than White women. Breast cancer screening rates are lower in populations that are disadvantaged, including women in rural areas, those from a low SES background, and those who lack health insurance. The North Carolina Breast Cancer

Screening Program, a community trial developed to identify the efficacy of a lay health advisor intervention, focused on increasing mammography utilization among African American women 50 years old and residing in eastern North Carolina. The method for the study involved 25 focus groups of key informants who had helped to train the lay health advisors. The groups were held in five intervention counties in eastern North Carolina. The participants included 993 women from two African American cohorts; 91 of these women were not included during the follow-up phase because they had changed location.

Earp et al. (2002) found that the women from the low SES counties accounted for an 11% increase in mammography utilization. During baseline studies, a decreased number of women in the intervention cohort reported mammography utilization. The women in the intervention cohort reported a decreased household income and did not have a doctor recommendation to get a mammography in the previous year, as compared to the comparison cohort women. There was an increase in mammography utilization within baseline and follow-up in the intervention and comparison cohorts.

Sadler, Takahashi, Ko, and Nguyen (2003) studied the behaviors and attitudes of Japanese American women toward breast cancer education and screening. A sample of 1,202 Asian American women, which included 47 Japanese women, were recruited to participate. The researchers also recruited grocery store owners who were experts in Japanese food and culture to become associated with the study. They were not part of the sample. The method for the study involved materials and information on how to access CBE and mammogram at no cost for women with limited incomes. Treatment options

were provided if the women were diagnosed with breast cancer. The women also were informed about screening by information on posters that depicted popular Japanese stars. The researchers communicated with all of the participants in their preferred language. Sadler et al. (2003) found an increase in the number of Japanese American women who participated in the study. They attributed this increase to the involvement of the grocery store owners, who specialized in Japanese food. The researchers also found that mammography screening for the Japanese women increased in comparison to that for the other Asian American women who participated in the study. In addition, Sadler et al. reported that even though screening rates increased, most of the women mentioned not having enough breast cancer knowledge.

Montazeri et al. (2008) conducted research about breast cancer in Iran and the need for greater awareness among women about the warning signs and effective screening methods. They utilized a questionnaire to survey the women on their demographic status, personal family history of breast cancer problems, knowledge of breast cancer, and screening methods. They found that many of the women did not practice BSE because they were unaware of how to perform it. They also reported that the women's ages, education, knowledge of breast cancer, and breast cancer screening methods affected their ability to perform BSE.

Lostao, Joiner, Pettit, Chorot, and Sandin (2001) studied health beliefs and illness attitudes as predictors of breast cancer screening attendance. They recruited 708 women in Navarre, a city in northern Spain, of which 512 participated in the study (196 were considered unable to participate because they were not in the same program at the Health

Department in Navarre, Spain, to detect the onset of breast cancer). The women who were invited to come to the program were between the ages of 45 and 65.

Lostao et al. (2001) found that Rosenstock's (1974) model of perceived severity of breast cancer and perceived susceptibility of breast cancer was associated with the women's participation in screening. The results from the study showed that fear about the disease and its symptoms affected how often the women participated in screening. Lostao et al. concluded that the women's beliefs and attitudes were very important aspects of their behavior in terms of preventing cancer.

Chukmaitov, Wan, Menachemi, and Cashin (2008) employed a cross-sectional design to study breast cancer knowledge of attitudes toward mammography as predictors of breast cancer preventative behavior among a sample of Kazakh, Korean, and Russian women in Kazakhstan. They conducted face-to-face interview with 500 women in Almaty City. Chukmaitov et al. contended that the information that clinicians gave to the women influenced their willingness to utilize breast cancer preventive techniques. Multivariate models, knowledge of breast cancer, and attitudes toward mammography effectiveness were important factors for the women in the study to utilize breast cancer preventive measures. The researchers recommended that interventions in public health be established to encourage women and health care professionals to utilize mammography to detect the onset of breast cancer in Almaty City, Kazakhstan.

Hibbard, Greenlick, Jimison, Capizzi, and Kunkel (2001) explained that most self-care programs concentrate on interventions that deal with populations in the workplace or those who participate in a health care delivery system. They mentioned that

some studies have reported sending out self-care manuals that have led to a decreased use of physicians, whereas other studies have reported no known impact. Hibbard et al.'s objective was to assess the impact of the Healthwise Community Project (HCP) on the utilization of self-care resources, self-care behavior, health care utilization, health care costs, and satisfaction of care within the intended sample. They utilized a quasi-experiment design involving one intervention community, two comparison communities, and a nonrandom assignment to issues.

The two comparison communities were from four counties around Boise, Idaho. Hibbard et al. (2001) found a significantly higher rate of households that had documented having a self-manual, proving that the intervention significantly raised the rate of intervention, BSE, and CBE. They found that the utilization of self- studies related to different methods of breast cancer detection and screening. Multiple measurements assessed the impact of HCP in the intervention community. The design involved process, effect, and outcome measurements.

Hibbard et al. (2001) chose the two comparison communities because “they bracketed the intervention community demographically” (p. 408). The intervention communities comprised four counties around Boise, Idaho. The two comparison communities were Billings, Montana, and Eugene/Springfield, Oregon. They found that utilization of self-care manuals increased from 49–66% over 3 years. They used bivariate analysis (chisquare) to examine the sociodemographic factors of those who utilized self-care products versus those who did not. The women who used the self-care manuals were married and had children at home. Those who had an education above high school used

the manuals more than those with high school or less education. The utilization of a computer for self-care information had no link to age, education, or possession of private health insurance.

Katapodi, Facione, Miaskowski, Dodd, and Waters (2002) utilized a descriptive, cross-sectional sample of convenience design in a multicultural community of low-income women from three racial groups, namely, Latina, Caucasian, and African American, in the San Francisco Bay area to assess the influence of social support on breast cancer screening. The result of the study revealed that the participants with high levels of income and education were linked to the amount of social support that they had. The researchers concluded that adhering to the recommended guidelines for breast cancer screening was related to the level of social support that the women received.

In a study of more than 1 million women, Smith-Bindman et al. (2006) collected data based on the responses to survey questions from seven mammography registries, including the San Francisco Mammography Registry, the Seattle Group Health Cooperative, the Colorado Mammography Project, the Vermont Breast Cancer Surveillance System, the New Hampshire Mammography Network, the Carolina Mammography Registry, and the New Mexico Mammography Project. The results revealed that the African American women in the study received insufficient screening, which might be a contributory factor to the fact that African American women are diagnosed more than White women for late-stage cancerous tumors. Smith-Bindman et al. concluded that African American women receive insufficient breast cancer screening

in mammography before the age of 55. Table 2 summarizes the literature reviewed on studies related to different ways to examine breast cancer and screening.

Table 2

Literature on Breast Cancer and Screening Methods

Researchers	Year	Design	Sample	Survey or intervention	Remarkable findings	Conclusion
Su et al.	2006	Cross-sectional design	Convenience sample of 111 Chinese women	Survey	Result showed women who obtained information from their physician influenced the frequency of receiving CBE.	Chinese women have insufficient screening and treatment measures; hence, more education on breast cancer and screening are greatly needed.
Darnell et al.	2006	Observational	9 African American churches, 8 organizations for Latino catholic parishes. Convenience sample.	Intervention	African American women who were informed about mammogram by their churches were more likely to use mammogram screening.	Faith-based programs play an important role in helping increase awareness about early detection of breast cancer.

Table 2 Cont'd

Researchers	Year	Design	Sample	Survey or intervention	Remarkable findings	Conclusion
Earp et al. et al.	2002	Stratified random design	Sample of 2,298 of which 1,996 participated.	Survey, intervention, and evaluation.	Results showed due to the intervention the use of mammography in the community was high.	Doctor referrals and ability and ability to use mammography had no effect on why there was insufficient usage of mammography.
Sadler et al.	2003	Evaluation. Materials and information	1,202	Intervention /Survey	Result showed mammography screening for Japanese women increased compared to women from other Asian group.	Asian stores specializing in Japanese food helped to address information on breast cancer and other health related issues to the population.
Montazeri et al.	2008	Descriptive study	1,402	Survey	Majority of the women reported not knowing how to use BSE, which explains the very low rate of the women knowing BSE.	The women had very little knowledge of breast cancer and screening protocols, such as CBE, BSE, and mammogram. There is a need for more education to address the issue.
Lostao et al.	2001	A retrospective study design	512	Intervention . Individual structured questionnaire.	Result showed fear of breast cancer affected the women in participating.	Women's perceptions are relevant aspects for preventive behavior for women regarding cancer.

Table 2 Cont'd

Researchers	Year	Design	Sample	Survey or intervention	Remarkable findings	Conclusion
Chukmaito v et al.	2008	A cross sectional descriptive study	500	Face-to-face interviews	Result from the study showed advices given by healthcare providers to women affected their ability to use preventive measures for breast cancer.	Health care providers should promote preventive breast cancer measures among women.
Hibbard et al.	2001	Quasi-experimental design	112, 000 households involving four intervention communities.	Intervention	There was high increase of the utilization of self-care resources due to the community intervention.	The majority of those who participated in the intervention reported positively about self-care resources in that it assisted them to not look for care they did not need.
Katapodi et al.	2002	Descriptive cross-sectional study	838	Survey	Higher income and education was associated with the amount of social support received by the women.	In order for women to comply with guidelines for breast cancer screening, social support is relevant.
Smith-Bindman et al.	2006	Prospective cohort	1,010515	Survey	Most women lack mammography utilization and African American women receive insufficient breast cancer screening and mammogram.	Women who have never been screened should be screened to detect tumors before they develop to a higher stage to reduce death rates.

Note. Joint literature review on different methods regarding breast cancer and screening,

The Health Belief Model

According to the HBM, two factors determine the chances of an individual choosing a recommended health behavior. One factor is that a person's belief about disease susceptibility and severity leads to a positive health behavior. The second factor is that if a person believes that benefit can be derived from choosing a positive health behavior, then there is the likelihood that the individual will change the behavior. In this study, receiving mammography is more important and beneficial than the barriers to participating in the procedure because it is viewed as a positive health behavior. In developing interventions, it is important to recognize and identify the San Francisco African American women's opinions about the benefits of mammography and the barriers to receiving the preventive cancer screening. It is necessary to understand the perceived susceptibility and seriousness of breast cancer to African American women in the Bayview area of San Francisco in order to deal successfully with the problem of how to increase the use of mammography.

Figure 1 shows how the HBM constructs can be applied to African American women in the Bayview area of San Francisco to enable them to recognize how breast cancer screening, using mammography, can be utilized to motivate and enhance constructive decisions to prevent breast cancer deaths. Perceived susceptibility focuses on knowledge and belief of how breast cancer screening will affect the lives of the women (McCormick-Brown, 1999). Perceived benefits focus on how the women will adopt a new healthy behavior and their belief that it will help to decrease their chances of getting breast cancer. Perceived severity is the women's belief that to have a healthy lifestyle,

they will need to adhere to the guidelines for mammography set forth by the ACS (2003). Perceived barriers include lack of health care coverage and funds to get a mammography. Action implies that the women will have to participate in educational programs for breast cancer and to obtain information on how to prevent the disease. In regard to self-efficacy, the women will be able to communicate freely with their primary care physicians, whom they trust when dealing with issues related to breast cancer and breast cancer screening. The HBM was used in this study to address the different factors of an individual's behavior. According to Ham (2006), self-efficacy as part of the HBM is "an individual's ability to participate in a specific behavior that is important in successfully changing a lifelong behavior" (p. 114).

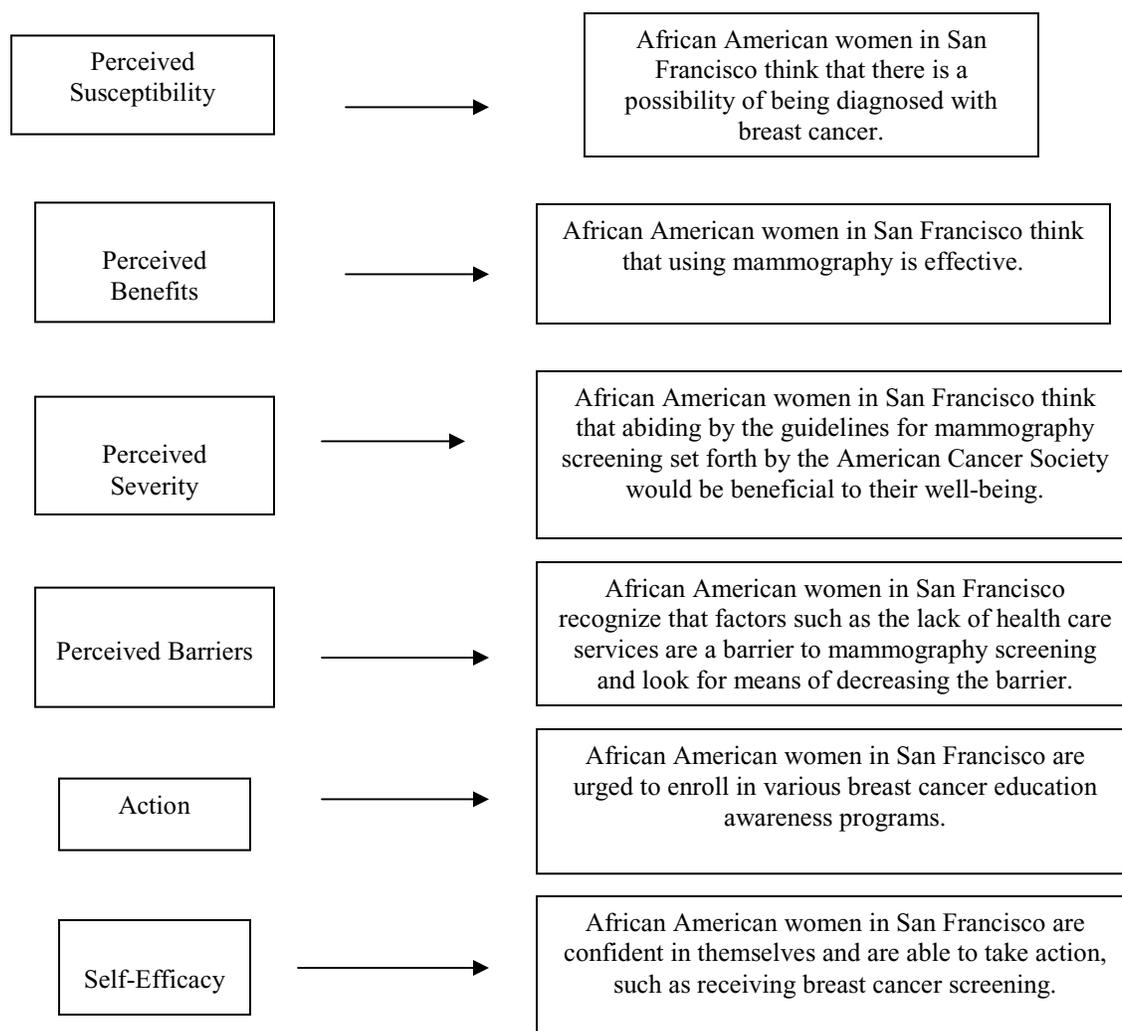


Figure 1. HBM on perceptions and attitudes toward mammography screening.

Source. Becker et al., as cited in “Theoretical Framework to Study Exercise Motivation For Breast Cancer Risk Reduction,” by M. Wood, 2008, *Oncology Nursing Forum*, 35(1), 89-95.

Barriers to Breast Cancer Screening

Following is a concise summary of the barriers to breast cancer screening among African American women that may vary among women.

Culture

To identify the appropriate preventive methods to control breast cancer, Guidry, Matthews-Juarez, and Copeland (2002) opined that health care professionals need not only assess the cultural behavior and beliefs of African American women but also must define African American women. African American women's ancestral lineage can be connected to the area they reside or where they and their families originated from, such as the Caribbean, Central America, or Africa. Similarly, Guidry et al. maintained that cultural links influence individual perceptions of the world and self. African American women are diverse; hence, they have different attitudes, norms, and beliefs. Gregg and Curry (1994) stated that African American women view breast cancer screening practices as a disease harbinger resulting to death. They also noted that the women believe that God will help to get rid of the disease.

Perception

According to Guidry et al. (2002), perception is a vital psychosocial hindrance for taking care of cancer that influences decision making, which may include such variables as silence and lack of trust in the health care system. Guidry et al. argued that the reason for the silence among African American women may be their belief that if the disease is left alone, the disease will go away by itself. African American women make decisions that are often guided by their cultural beliefs. Kinney, Emery, Dudley, and Croyle (2002) stated that African American women depend on God to do away with breast cancer disease, with the result being that the women do not depend on screening and other treatment regimens to take care of the issue.

Socioeconomic Status

Insufficient financial resources, according to Guidry et al. (2002), may be a contributory factor that hinders African American women from seeking breast cancer screening. African American women from low SES backgrounds access health care only when they perceive that there is a serious health issue. Instead, they tend to focus on economic and social aspects that are important to their daily lives (Guidry et al., 2002).

Breast Cancer Risk Factors

Underwood (2006) stated that breast cancer is linked to the number of mutations in the genes and the development of the cells in the breast, adding that about 68% of all breast cancers can be linked to isolated cases that might be to the result of a family history of the disease. Underwood also mentioned that a woman's risk of having breast cancer can be linked to age, race, age of menarche, family or personal events, and other conditions relating to the breast. Other contributory factors include the amount of alcohol consumed and a lack of exercise.

Age. The NCI (2007) noted that more than 17% of all women who are 40 years old are diagnosed with breast cancer and that more than 70% of women ages 50 and older are diagnosed with breast cancer. In addition, as a woman advances in age, her risk of developing breast cancer increases.

Race. African American women who are between the ages of 40 and 50 have an increased incidence of breast cancer in comparison to White women (NCI, 2007).

Personal events. Underwood (2006) asserted that if a woman has previously experienced breast cancer in one of her breasts, she has a risk of developing breast cancer in both breasts.

Family history. A woman whose mother, sister, or other relative from either side of the family has developed breast cancer may develop breast cancer herself in the future (Underwood, 2006).

Physical activity. Women who have never exercised or incorporated any kind of physical activity into their daily lives are more likely to develop breast cancer (Underwood, 2006). According to Wood (2008), engaging in regular exercise for 3 or more hours in a week decreases breast cancer risk by over 30%.

Screening for Breast Cancer

According to Smith-Bindman et al. (2006), in a study involving more than 1 million women, one of the contributory factors why African American women are diagnosed more often than White women for tumors at a late stage is the result of the lack of screening for breast cancer. In addition, African American women receive insufficient breast cancer screening because of a lack of mammograms before age 55.

Mammography

The ACS (2008c) explained that a mammogram is an X-ray of the breast to detect cancer in women without symptoms. Mammography screening is an important way to decrease the differences of breast cancer stages during diagnosis (Sassi, Luft, & Guadagnoli, 2006). Mammography helps to decrease mortality rates related to cancer and can help in decreasing the gap in diagnosis among racial groups. Sassi et al. reported on

the National Health Interview Survey's (2000) findings that the decreases in mammography screening rates among African American women and Hispanic women, in comparison to White women, were 4.2% and 11.3%, respectively, among women ages 40 and older.

Benefits of Breast Cancer Screening

The USPSTF (2002) maintained that if women 40 and older were to utilize mammography screening yearly or in a 24-month period, deaths related to breast cancer would decrease for 9 or more years by 19% or greater. In addition, Humphrey, Helfand, Chan, and Woolf (2002) mentioned that even though early detection of breast cancer is important, women with life-threatening diseases might not notice the benefit. However, for women ages 40 to 49, yearly screening can be more relevant than for women who are older.

Screening Guidelines for Breast Cancer

Elmore, Armstrong, Lehman, and Fletcher (2005) asserted that the objective of breast cancer screening is to decrease the death rate through early detection. They cited the USPSTF's (2002) previous recommendation that women ages 40 and older utilize mammography screening. In November of 2009, the USPSTF recommended that women ages 50 to 70 utilize mammography screening every 2 years based on each woman's condition and considering the benefits and harms to the woman. The USPSTF also recommended that women in their 40s not have regular mammogram screening, but discuss the issue with their physicians, keeping in mind their family history and health. According to the ACS (2003), there is no definitive method of preventing cancer;

therefore, there is a need for women to utilize frequent mammogram screening. Women are urged to decrease their risk conditions by engaging in regular physical activity, decreasing alcohol consumption, and having frequent mammograms. Table 3 shows the recommended guideline by the ACS for women ages 20 to 37 and women ages 40 years and older for breast cancer screening.

Table 3

Recommended Guidelines for Women Ages 20 to 37 and 40 and Older

Women ages 40 and older	Women ages 20 to 37
Yearly mammogram	Recommend CBE every 3 years
Recommend yearly CBE	Recommend BSE every month

Note. "Breast cancer facts and figures," by ACS, 2003.

Retrieved from www.cancer.org/downloads/STT/CAFF2003BrFPWSecured.pdf

Summary

Breast cancer can affect women emotionally, socially, and physically. It is important to understand the barriers that influence African American women's decision whether or not to seek and utilize mammogram screening. Data collected from this study will help to develop educational materials that will provide support for African American women to deal with the disease.

After reviewing the literature, I concluded that even though women from all races are susceptible to breast cancer, African American women are more likely to die from the disease (Underwood, 2006). The cross-sectional study by Okobia et al. (2006) revealed that knowledge of breast cancer and screening methods are influenced by education and employment. This study also showed that the level of education determines how knowledgeable women are about health behavior. Sadler et al. (2007) used a sample

of beauty salon participants to determine their knowledge, attitudes, and screening practices toward breast cancer. The women, who ranged in age from 20 to 94, had little knowledge about breast cancer and screening techniques.

After reviewing the literature, I concluded that women's awareness and perception of breast cancer screening significantly influence their ability to seek and receive mammography screening. The review also showed that education about breast cancer screening could influence African American women's decision to receive mammography screening. Mammography is an important method of breast cancer screening that facilitates the early detection of the disease. This chapter provided information on the increased mortality rate relating to breast cancer among African American women. Even though studies have focused on the knowledge and behaviors of African American women toward breast cancer screening nationwide, no study has assessed the specific knowledge, attitudes, and behaviors toward breast cancer screening of African American women living in the Bayview area of San Francisco. The purpose of this study was to assess the knowledge, attitudes, and behaviors of African American women living in the Bayview area of San Francisco toward breast cancer screening.

Chapter 3 presents the research method. It explains the instrumentation, sampling procedures, data analysis design, sample selection process, and eligibility criteria.

CHAPTER 3: RESEARCH METHOD

Overview of the Study

The primary purpose of this study was to assess the knowledge, attitudes, and behaviors of African American women regarding breast cancer screening in the Bayview area of San Francisco.

This chapter describes the research design, instrumentation, sampling procedures, and data analysis design. It also identifies the sample and the eligibility criteria. It explains the protocol to protect the human participants, sample selection, and administration of the instrument, procedures for measuring the variables, and evidence of instrument reliability and validity. The participants, between 40 and 65 years of age, were randomly selected from churches and senior service center programs. A self-administered questionnaire was used to collect the data.

Research Design

Research Questions

The purpose of this study was to assess the knowledge, attitudes, and behaviors towards breast cancer screening of a sample of African American women residing in the Bayview area of San Francisco. It explored the following research questions:

1. Do the attitudes variables have a relationship to compliance with breast cancer screening among African American women aged 40 to 65 years living in the Bayview area of San Francisco ?

2. Does knowledge of breast cancer screening among African American women aged 40 to 65 years living in the Bayview area of San Francisco relate to their behavior toward breast cancer screening?
3. Does perceived barriers and attitudes for breast cancer screening among African American women aged 40-65 years living in the Bayview area of San Francisco relate to their demographic characteristics?

This descriptive, cross-sectional study was “based on representing a single point in time” (Babbie, 2007, p. 102). As a result, the survey method involved self-administration of the questionnaire to collect the data. Friis and Sellers (2004) mentioned that the advantage of the cross-sectional design is that it “provides quantitative estimate of the magnitude of a problem” (p. 228); the disadvantage is the “lack of utility for studies of disease etiology” (p. 234).

The survey measured breast cancer risk factors and screening behaviors, as well as the knowledge; attitudes, such as perceived susceptibility of breast cancer; and perceived benefits of and barriers to breast cancer screening by use of mammography.

Dependent Variable

The dependent variable for this study was the behavior of seeking mammogram screening. In order to decrease the incidence and mortality of breast cancer, the USPSTF (2002) recommended that women 40 and older obtain screening mammography yearly in a 24-month period.

The instrument for the study contained question items eliciting whether the participants have ever had breast cancer screening experience. The items of the

questionnaire elicited yes or no responses. The variables were represented as $X = no$ and $1 = yes$ in regard to adhering to breast cancer screening guidelines by the ACS (2003). The participants were asked whether they had ever received mammogram and how old they were when the mammogram was performed.

Independent Variables

The independent variables were perceived susceptibility, perceived severity, perceived benefits, perceived barriers, action, and self-efficacy towards breast cancer screening. Utilizing these variables provided important information about those factors that would prevent African American women from seeking breast cancer screening. This study also sought to determine whether there was a relationship between breast cancer screening, age, education level, and SES of the participants.

Sample Selection

The sample for this study comprised 126 African American women, ages 40–65, who were living in the Bayview area of San Francisco. The women were affiliates of churches and senior service center programs in the Bayview area. This procedure was chosen because the churches and the center programs have many members who utilize their services and they provided more potential participants for the study. The researcher solicited potential participants by contacting the pastors of the churches and directors of the senior service center programs. The participants were recruited by choosing the address zip codes identified with the Bayview area from randomly selected churches and center programs from a listing of churches and center programs advertised in the Sun

Reporter newspaper of April 2009. This study targeted African American women residing in the Bayview area of San Francisco.

Sample Size

I used GPower analysis software to test for power estimate for sample size. Erdelder, Faul, and Buchner (1996) stated, “GPower is a general power analysis program that performs high precision statistical power analysis for the most common statistical tests in behavioral research for accuracy” (p. 2). In determining the sample size, the GPower software calculated a minimum sample of 109 with an alpha level of 0.05 and an effect size of 0.5 to be able to achieve a power level of .80. To ensure enough power, the researcher administered the survey to 126 participants. The effect size was chosen because, according to Munro (2005), the effect size “is the degree to which H_0 is false” (p.100), which is the extent to which the independent variable has an effect, on the dependent variable. The effect size of 0.5 was mentioned by Munro as a “medium effect” (p.100) in order to perform and accomplish a statistical analysis with power set at .80.

Eligibility Criteria

To be included in this study, the participants had to be African American women between the ages of 40 and 65 who were living in the Bayview area of San Francisco at the time of the study. . Women were excluded from the study if they were outside of that age range and were not residents of the San Francisco Bayview area, and are members of any health or medical professions.

Recruitment Strategy

As mentioned previously, the participants were recruited by choosing the address zip codes identified with the Bayview area from randomly selected churches and center programs from a listing of churches and center programs advertised in the Sun Reporter newspaper of April 2009. These churches and center programs are operated, owned, and directed by African Americans, and the majority of the members of these churches and center programs are African American, many of whom met the primary criterion to participate in this study. The church pastors and center directors were asked to inform their members during their regular Sunday church service and events and invite them to participate in the study.

The church pastors and center directors identified staff representatives who helped the researcher to coordinate appropriate times and days to come to the churches or centers to administer the survey to the potential participants. The researcher introduced herself and explained the objective, methods, and design of the study to the potential participants. The participants did not receive any compensation of any kind. The participating churches, centers programs, and participants were given the option of receiving a copy of the results after the completion of the study.

Instrumentation

This study used a survey tool with proven validity and reliability for data collection. As mentioned earlier, an amended version (i.e., amended by the original author) of the CRSBBSMS (Champion, 1999) was used to collect the data. This instrument has been tested by Champion and has been proven reliable and valid.

According to Russell et al. (as cited in Farmer et al., 2007), this instrument has been tested and confirmed to be valid for use with African American women.

I used a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) on a model that has been revised and analyzed for construct validity on African American women. I sought and obtained permission via regular U.S. postal mail from Dr. Victoria Champion on February 5, 2008, to use the CRSBBSMS (see Appendixes A and B). Dr. Champion enclosed a copy of the instrument (see Appendix C) and relevant articles and requested that I cited and forward a copy of the study abstract once the study has been completed. The instrument items on the various variables of interest were assessed in the following ways:

1. To measure knowledge, 3 itemized questions were asked in yes/no response format. Questions on knowledge related to the participants' awareness of breast cancer screening are displayed in frequency tables. The focus was on assessing the participants' current knowledge of breast cancer screening and rating their current knowledge to breast cancer risk factors. Mean score was computed.
2. The perceived susceptibility of African American women's risk of getting breast cancer was identified by 5 questions on a Likert scale range of *disagree, strongly disagree, agree, strongly agree, and neutral*.
3. To measure the perceived benefits of mammography, 6 questions were utilized on a Likert scale range of *strongly agree, agree, strongly disagree,*

disagree, and *neutral* to determine whether the score rates for perceived benefits would increase.

4. To identify the perceived barriers, there were 6 questions with a Likert scale range of *strongly disagree*, *disagree*, *strongly agree*, *agree*, and *neutral*. The scores were tabulated and separated by the overall number of participants who answered each question to determine the score rates for perceived barriers to mammography and demographic questions.

This study used the CRSBBSMS (Champion, 1999). This scale has been tested on African American and White women. The subscales of Perceived Susceptibility, Benefits, and Barriers to Mammography Screening were tested and analyzed for internal consistency and reliability using factor and confirmatory analysis. The subscales showed an internal consistency reliability of .75 and greater. Factor and exploratory analyses were used to determine construct validity (Champion, 1999). The susceptibility scale showed a slight reduction in internal consistency reliability in three items, with the present data showing .87 and prior data showing .93 (Champion, 1999). The reduction in internal consistency reliability was not important for susceptibility. The test–retest was reduced to .62, which might have been the result of changes in the scale or attitude but had “a correlation of .62 which is acceptable” (Champion, 1999, p. 347). Champion also mentioned that the benefits and barriers on the scales were consistent. Barriers scale was enhanced to .88, in comparison to .73 in prior work. Test–retest reliability for the present data regarding benefits was .61 and .71 for barriers, in comparison to past results of .38 for benefits and .60 for barriers, respectively (Champion, 1999).

Data Collection

I sought approval from Walden University's Institutional Review Board (IRB) before the data were collected. After receiving IRB approval (#11-17-09-0347045), the researcher visited the churches and center programs mentioned previously to solicit potential participants. I introduced myself again and explained the objective, methods, and design of the study to the potential participants. I questioned the potential participants to determine their eligibility to take part in the study.

Those women who were members of the randomly selected churches and center programs received fair treatment, and for those women who were not eligible, I explained to them why they did not meet the eligibility criteria. The eligible participants received information from me regarding confidentiality and the process for implied informed consent. I compiled and assembled a survey packet that included a cover letter; an implied informed consent; the survey questionnaire; and pens, pencils, and an eraser to complete the questionnaire.

The data were collected from the self-administered CRSBBSMSInformation associated with the demographic characteristics of age, education, and occupation were collected. The participants were asked questions about their knowledge of breast cancer, symptoms, and screening, as well as questions associated with BSE, CBE, and mammography screening. I computed and analyzed the scores to identify the participants' level of awareness about breast cancer screening.

Administration of the Instrument

I administered the instrument to the sample of 126 African American women who were not members of any health or medical professions. The returned scores were computed and analyzed for breast cancer screening awareness.

Data Analysis

The data were entered into a spreadsheet and later analyzed using SPSS V.17.0 for results. Descriptive statistics such as frequencies, means, and standard deviations were utilized to describe the demographic variables of age, income, education, age at first mammogram, BSE, and frequency of mammography. On knowledge and compliance scores, each question answered correctly was scored as 1 for yes and 2 for no to facilitate a comparison of each participant's response regarding knowledge. The data were analyzed using tables in testing hypotheses. Cross-tabulations of scale scores were shown for the demographic variables to determine whether there were significant correlations among the variables.

Fisher's exact test was utilized because three cells had fewer than 5 respondents in a 2 x 2 table. Pearson product-moment was utilized to find a correlation between attitude scores and demographic variables. One-way ANOVA was used to compare the attitude variables based on age, education, and income level of the women, and Scheffe post hoc tests were used to compare the various groups. The tests were considered statistically significant (two-tailed), alpha at .05 or less. The analysis involved an assessment of the participants' current knowledge, attitudes, and behaviors toward breast cancer screening; their ability to identify the disease; and the implication of mammography toward breast cancer survival rate.

Hypothesis 1 was untestable because of the imbalance in frequencies between women who complied with breast cancer screening and the noncompliant women. To test Hypothesis 2, the researcher used Fisher's exact test, a statistical method used to test the relationship between knowledge and behavior, to determine whether there was any significant difference in the level of awareness about breast cancer screening among the participants. Pearson product-moment was used to find the correlation between attitude scores and the demographic variables. To test Hypothesis 3, Pearson product-moment was utilized to find the correlation of six attitude scores (perceived susceptibility, perceived seriousness, perceived benefits of mammography, perceived barriers to mammography, self-efficacy, and cues to action), and demographic variables (age, education, income, frequency of BSE, and age at first mammogram). To test Hypothesis 4, one-way ANOVA was used to compare the six attitudes scores to determine whether the women had breast cancer.

Univariate and Bivariate Analysis

According to Babbie (2007), univariate analysis is the analysis of a "single variable for description" (p. 409). The objective of this study was to assess the knowledge, attitudes, and behaviors regarding breast cancer screening of a sample of 126 African American women living in the Bayview area of San Francisco; hence, I was interested in the importance of how knowledge, attitudes, and behaviors with a single variable such as age, education, or SES varied in this group. Babbie mentioned that bivariate analysis is used to identify the relationship connecting the variables. I also sought to determine whether age had an impact on the increase or decrease in use of

mammography screening, and whether education influences the lack of effort in seeking mammography screening.

Protection of Participants' Rights

I was diligent that any information about the participants would remain confidential by ensuring that the survey data and descriptions were anonymous. I adhered to the guidelines set by Walden University's IRB to ensure the confidentiality of all information as well as the participants' individual rights. I securely stored all of the information in a locked and secure location that was accessible only by me. I adhered to the ethical principles of respect for persons in that the participants had the right to freely participate or withdraw from the study at any time. I acknowledged the concerns of the community, beneficence to ensure that there was the least amount of harm to the participants, and justice to ensure that the participants were not taken advantage of.

Participation in the study was voluntary, and there was no monetary or gift-type compensation for the participants. I provided my contact information to each participant in a cover letter (see Appendix D). In accordance with Walden University's IRB requirements, I obtained implied informed consent (presented in English; see Appendix E) from the participants, the two churches, and the two center programs before collecting any data.

Summary

The purpose of this chapter was to provide detailed information about the procedures for administering the survey questionnaire and to determine the awareness of breast cancer screening among a sample of 126 African American women residing in the

Bayview area of San Francisco. The chapter provided information on the sample and the sample size selection. Data collected from the 126 respondents were used for statistical analysis to determine the women's awareness of breast cancer screening. The collected data allowed me to describe the findings from this sample as well as identify any differences in the levels of awareness, attitudes, and behavior regarding breast cancer screening among the participants based upon the variables of age, SES, and education (see Appendix F). This information was viewed as a major factor to identify the general level of knowledge, attitudes, and behavior of the participants toward breast cancer screening. Chapter 4 discusses the results of this study and ends with a summary.

CHAPTER 4: RESEARCH RESULTS

Introduction

The primary purpose of this study was to assess the knowledge, attitudes, and behaviors of African American women regarding breast cancer screening in the Bayview area of San Francisco. The purpose of this chapter is to present and discuss the results of this study. Presented in this chapter are the results of the data analysis for this study. The 126 African American women residing in the Bayview area of San Francisco who participated in this study were given survey questions to assess their knowledge, attitude, and behavior toward breast cancer screening. They also provided demographic information on age, income, and education. Also included in the chapter are the HBM construct scores and their correlation with the demographic variables. The one-way ANOVA was used to compare the six attitudes of perceived susceptibility, seriousness, perceived barriers to mammography, perceived benefits to mammography, self-efficacy, and cues to action, as well as the demographic variables of age, education, frequency of BSE, and age at first mammogram. Scheffe post hoc tests were utilized to ascertain any differences among the variables. Fisher's exact test and Pearson product-moment tests were used to address the research questions and hypotheses:

Research Questions

1. Do the attitudes variables have a relationship to compliance with breast cancer screening among African American women aged 40 to 65 years living in the Bayview area of San Francisco ?

2. Does knowledge of breast cancer screening among African American women aged 40 to 65 years living in the Bayview area of San Francisco relate to their behavior toward breast cancer screening?
3. Does perceived barriers and attitudes for breast cancer screening among African American women aged 40-65 years living in the Bayview area of San Francisco related to their demographic characteristics?

Null Hypotheses

After a thorough review of existing literature on the subject and the development of a conceptual framework, the following null hypotheses were formulated for the study:

H_{01} : Attitudes have no significant relationship toward breast cancer screening and behavior of African American women living in the Bayview area of San Francisco.

H_{02} : African American women living in the Bayview area of San Francisco who are not knowledgeable about breast cancer screening will not utilize mammogram tests.

H_{03} : For African American women living in the Bayview area of San Francisco, their perceived barriers of breast cancer screening would not be related to their demographic characteristics..

Demographic Data

For this study, 126 African American women were surveyed. The ages of the women ranged from 40 to 65 ($M = 53.52$, $SD = 7.07$). All of the participants reported having a high school diploma, with 31.8% also having a college degree. In Table 4, the

median (*Mdn*) for education includes those women with some college because they crossed the 50th percentile. Income ranged from less than \$35,000 to more than \$60,000, with a median level of \$40,000. There was no mean score for income because the top category for income was over \$60,000. Sixty-nine percent reported performing BSE at least monthly, with 12 of the women (9.5%) reporting that they never did the test. All but 3 (97.6%) women had had at least one mammogram, and for those 123 women, the age of their first mammography ranged from 20 to 59 ($M = 40.82$, $SD = 5.32$). In addition, all but 3 women (97.6%) correctly answered the questions on knowledge about breast cancer and breast cancer screening. Frequency counts for the selected variables of age, education, and income for the participants are presented in Table 4.

Table 4

Frequency Counts for Selected Variables by Age, Education, and Income

Variable	Category	<i>n</i>	Percent
Age ^a	40-49	36	28.6
	50-59	58	46.0
	60-65	32	25.4
Education ^b	High school	37	29.4
	Some college	49	38.9
	College graduate	18	14.3
	Graduate degree	22	17.5
Income ^c	Less than \$35,000	26	20.6
	\$35,000-\$40,000	37	29.4
	\$40,000-\$50,000	28	22.2
	\$50,000-\$60,000	22	17.5
	Over \$60,000	13	10.3

^aAge: $M = 53.52$, $SD = 7.07$

^bEducation: *Mdn* = some college

^cIncome: *Mdn* = \$40,000

High school = completed

Income = Individual

Knowledge of Breast Cancer Screening

The participants' knowledge of breast cancer screening was assessed by their responses to the yes/no questions. Table 5 describes the frequency and distribution of BSE, mammogram, and age at first mammogram. Some of the women performed BSE at age 20; the oldest women to perform BSE were age 59. One hundred and fourteen of the participants had performed BSE, and 12 had not. Three women (2.4%) ages 20 to 29, 18 women (14.6%) ages 30 to 39, 90 women (73.2%) ages 40 to 49, and 12 women (9.8%) ages 50 to 59 years had received a mammogram. The mean age for the 123 participants who had a mammogram was 40.82 ($SD = 5.31$). One hundred and twenty-three participants gave correct answers on the knowledge questions, whereas 3 women had incorrect answers on knowledge questions and had not received mammogram screening.

Table 5

Frequencies and Percent Distribution of BSE, Mammogram, and Age at First Mammogram

Variable	Category	<i>n</i>	Percent
BSE frequency ^a	Once a week	20	15.9
	Twice a month	9	7.1
	Monthly	58	46.0
	Every 6 months	17	13.5
	Yearly	10	7.9
	Never	12	9.5
Had a mammogram	Yes	123	97.6
	No	3	2.4
Age at first mammogram (<i>n</i> = 123) ^b	20-29	3	2.4
	30-39	18	14.6
	40-49	90	73.2
	50-59	12	9.8
Correct knowledge answer	Yes	123	97.6

Data analysis (see Table 7) displays the one-way ANOVA comparisons for the six attitude scales based on the ages of the women. Five of the six comparisons were not statistically significant. However, the perceived susceptibility score was different among the three age groups ($p = .01$). The subsequent Scheffe post hoc tests found that the women in the age category of 60 to 65 had higher susceptibility scores ($p = .02$) than the women in the age category of 40 to 49.

Table 7

Comparison of Attitude Scale Scores Based on Ages of the Women

Attitude scale	Age group	<i>n</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Perceived susceptibility ^a	40-49	36	2.03	0.84	4.50	.01
	50-59	58	2.18	1.04		
	60-65	32	2.67	0.77		
Perceived seriousness ^b	40-49	36	2.43	0.82	2.55	.08
	50-59	58	2.80	0.83		
	60-65	32	2.61	0.62		
Benefits of mammography ^b	40-49	36	3.76	0.85	0.52	.59
	50-59	58	3.58	0.89		
	60-65	32	3.61	0.75		
Barriers to mammography ^b	40-49	36	1.90	0.87	0.15	.86
	50-59	58	1.82	0.66		
	60-65	32	1.89	0.79		
Self-efficacy ^b	40-49	36	3.56	0.78	2.45	.09
	50-59	58	3.62	0.82		
	60-65	32	3.25	0.69		
Cues to action ^b	40-49	36	4.10	0.78	0.27	.76
	50-59	58	4.01	0.72		
	60-65	32	4.12	0.59		

Note. Ratings based on 5-point Likert scale: 1 = *strongly disagree* to 5 = *strongly agree*.

^aScheffe post hoc tests: 3 < 1 ($p = .02$); no other significant differences

were found.

^bScheffe post hoc tests: No significant differences at the $p < .05$ level.

Attitude Scale Scores Based on Participants' Education

Table 8 displays the one-way ANOVA comparisons for the six attitude scales based on the participants' education level. Three of the six comparisons were not statistically significant. The benefits of mammography scores were significantly different ($p = .001$). The women with graduate degrees had lower scores than the college graduates ($p = .004$) and the high school graduates ($p = .007$). The barriers to mammography were different based on the four education levels ($p = .001$). The subsequent Scheffe post hoc tests found that the participants who had a high school diploma had higher barriers to mammography scores than those with some college education ($p = .01$), college graduates ($p = .004$), and graduate degree women ($p = .008$). The cues to action scores were significantly different among the four education levels ($p = .02$). The subsequent Scheffe post hoc tests found that the women with graduate degrees had higher scores than the women with only some college education ($p = .03$).

Table 8

Comparison of Attitude Scale Scores Based on Education

Attitude scale	Education	<i>n</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Perceived susceptibility ^a					0.06	.98
	High school	37	2.25	1.00		
	Some college	49	2.28	0.95		
	College graduate	18	2.30	1.01		
	Graduate degree	22	2.19	0.88		
Perceived seriousness ^a					1.88	.14
	High school	37	2.77	0.80		
	Some college	49	2.70	0.75		
	College graduate	18	2.26	0.93		
	Graduate degree	22	2.61	0.69		

Attitude scale	Education	<i>n</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Benefits of mammography ^b	High school	37	3.91	0.69	6.90	.001
	Some college	49	3.48	0.84		
	College graduate	18	4.09	0.88		
	Graduate degree	22	3.16	0.73		
Barriers to mammography ^c	High school	37	2.29	0.92	6.96	.001
	Some college	49	1.77	0.65		
	College graduate	18	1.53	0.56		
	Graduate degree	22	1.62	0.47		
Self-efficacy ^a	High school	37	3.78	0.72	2.57	.06
	Some college	49	3.31	0.92		
	College graduate	18	3.52	0.57		
	Graduate degree	22	3.48	0.63		

Table 8 Cont'd

Cues to action ^d					3.40	.02
	High school	37	3.98	0.71		
	Some college	49	3.93	0.73		
	College graduate	18	4.11	0.74		
	Graduate degree	22	4.47	0.43		

Note. Ratings based on 5-point Likert scale: 1 = *strongly disagree* to 5 = *strongly agree*.

^aScheffe post hoc tests: No significant differences at the $p < .05$ level

^bScheffe post hoc tests: 3 > 4 ($p = .004$); 1 > 4 ($p = .007$); no other significant differences were found.

^cScheffe post hoc tests: 1 > 2 ($p = .01$); 1 > 3 ($p = .004$); 1 > 4 ($p = .008$); no other significant differences were found.

^dScheffe post hoc tests: 4 > 2 ($p = .03$); no other significant differences were found.

Attitude Scale Scores Based on Income

Table 9 shows the one-way ANOVA comparisons for the six Attitude Scales based on the income level of the women. Three of the six comparisons were not statistically significant. The susceptibility scores were significantly different ($p = .04$). However, despite the significant F statistic, $F(2.59, p = .04)$, none of the subsequent Scheffe post hoc tests was significant. The barriers to mammography were different based on the five levels ($p = .002$). The subsequent Scheffe post hoc tests found that the women who earned between \$35,000 and \$40,000 had higher scores than the women who earned more than \$60,000 ($p = .04$) and the women who earned less than \$35,000 ($p = .04$). The self-efficacy scores were significantly different among the five income levels ($p = .02$). The subsequent Scheffe post hoc tests found that the women who earned between \$35,000 and \$40,000 had higher scores than the women who earned less than \$35,000 ($p = .06$).

Table 9

Comparison of Attitude Scale Scores Based on Income

Attitude scale	Income	<i>n</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Perceived susceptibility ^a	Less than \$35,000	26	1.93	0.74	2.59	.04
	\$35,000-\$40,000	37	2.29	1.18		
	\$40,000-\$50,000	28	2.54	0.94		
	\$50,000-\$60,000	22	2.51	0.55		
	Over \$60,000	13	1.82	0.90		
Perceived seriousness ^b	Less than \$35,000	26	2.55	0.79	2.13	.08
	\$35,000-\$40,000	37	2.49	0.79		
	\$40,000-\$50,000	28	2.91	0.67		
	\$50,000-\$60,000	22	2.85	0.99		
	Over \$60,000	13	2.35	0.38		
Benefits of mammography ^a	Less than \$35,000	26	3.55	1.00	1.53	.20
	\$35,000-\$40,000	37	3.81	0.90		
	\$40,000-\$50,000	28	3.67	0.71		
	\$50,000-\$60,000	22	3.70	0.67		
	Over \$60,000	13	3.17	0.75		
Barriers to mammography ^c	Less than \$35,000	26	1.53	0.52	4.47	.002
	\$35,000-\$40,000	37	2.12	0.92		
	\$40,000-\$50,000	28	1.94	0.64		
	\$50,000-\$60,000	22	2.00	0.75		
	Over \$60,000	13	1.37	0.36		
Self-efficacy ^d	Less than \$35,000	26	3.23	1.06	2.94	.02
	\$35,000-\$40,000	37	3.82	0.78		
	\$40,000-\$50,000	28	3.42	0.62		
	\$50,000-\$60,000	22	3.57	0.37		
	Over \$60,000	13	3.24	0.77		
Cues to action ^a	Less than \$35,000	26	4.03	1.03	0.96	.43
	\$35,000-\$40,000	37	4.06	0.68		
	\$40,000-\$50,000	28	3.95	0.56		
	\$50,000-\$60,000	22	4.06	0.56		
	Over \$60,000	13	4.41	0.36		

Note. Ratings based on 5-point Likert scale: 1 = *strongly disagree* to 5 = *strongly agree*

^aScheffe post hoc tests: No significant differences at the $p < .05$ level.

^aScheffe post hoc tests: $3 > 1$ ($p = .23$); no significant differences were found.

^bScheffe post hoc tests: No significant differences at the $p < .05$ level.

^cScheffe post hoc tests: $2 > 5$ ($p = .04$); $2 > 1$ ($p = .04$); no other significant differences were found.

^dScheffe post hoc tests: $2 > 1$ ($p = .06$); no other significant differences were found.

Attitude Scale Scores Based on Frequency of BSE

Data analysis (see Table 10) displays the one-way ANOVA comparisons for the six Attitude Scales based on the frequency of BSE. Five of the six comparisons were not statistically significant. The self-efficacy scores were significantly different ($p = .001$). The subsequent Scheffe post hoc tests found that the women who reported performing BSE yearly or less often had lower scores than the women who performed BSE either twice monthly ($p = .001$) or monthly ($p = .001$).

Table 10

Comparison of Attitude Scale Scores Based on BSE Frequency

Attitude scale	Frequency	<i>n</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Perceived susceptibility ^a	Twice monthly or more	29	2.34	0.99	0.51	.67
	Monthly	58	2.31	1.06		
	Every 6 months	17	2.21	0.62		
	Yearly or less	22	2.05	0.82		
Perceived seriousness ^a	Twice monthly or more	29	2.95	0.89	2.31	.08
	Monthly	58	2.51	0.64		
	Every 6 months	17	2.48	0.76		
	Yearly or less	22	2.71	0.95		
Benefits of mammography ^a	Twice monthly or more	29	3.78	0.74	.35	.79
	Monthly	58	3.59	0.88		
	Every 6 months	17	3.65	0.70		
	Yearly or less	22	3.58	0.99		
Barriers to mammography ^a	Twice monthly or more	29	2.12	0.76	1.61	.19
	Monthly	58	1.80	0.80		
	Every 6 months	17	1.68	0.58		
	Yearly or less	22	1.81	0.68		
Self-efficacy ^b	Twice monthly or more	29	3.85	0.55	8.32	.001
	Monthly	58	3.62	0.66		
	Every 6 months	17	3.35	0.46		
	Yearly or less	22	2.88	1.15		

Table 10 Cont'd

Cues to action					1.59	.19
	Twice monthly or more	29	3.99	0.44		
	Monthly	58	4.16	0.67		
	Every 6 months	17	4.19	0.54		
	Yearly or less	22	3.82	1.06		

Note. Ratings based on 5-point Likert scale: 1 = *strongly disagree* to 5 = *strongly agree*.

^aScheffe post hoc tests: No significant differences at the $p < .05$ level.

^bScheffe post hoc tests: 1 > 4 ($p = .001$); 2 > 4 ($p = .001$); no other significant differences were found.

Attitude Scale Scores Based on Age at First Mammography

Displayed in Table 11 are the one-way ANOVA comparisons for the six Attitude Scales based on the ages of the women at first mammography ($n = 123$). Two of the six comparisons were not statistically significant. The perceived susceptibility scores were significantly different ($p = .001$). The women in this study who had their first mammogram between the ages of 20 and 39 had lower scores than either of the other two age groups ($p = .002$). The perceived seriousness scores were significantly different ($p = .04$). However, despite the significant F statistics, $F(3.39, p = .04)$, none of the subsequent Scheffe post hoc tests was significant. The women who showed benefits of mammography in their 40s had higher scores than the women whose first mammogram was at a younger age ($p = .02$). The barriers to mammography were different based on the three age groups ($p = .04$). The subsequent Scheffe post hoc tests found that the women who had their first mammography in their 40s had higher scores than the women who had the test for the first time in their 50s ($p = .04$).

Table 11

Comparison of Attitude Scale Scores Based on Age at First Mammography

Attitude scale	Age	<i>n</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Perceived susceptibility ^a	20-39	21	1.55	0.75	8.64	.001
	40-49	90	2.36	0.88		
	50-59	12	2.73	1.27		
Perceived seriousness ^b	20-39	21	2.36	0.88	3.39	.04
	40-49	90	2.75	0.77		
	50-59	12	2.30	0.72		
Benefits of mammography ^c	20-39	21	3.22	1.16	5.99	.003
	40-49	90	3.79	0.75		
	50-59	12	3.19	0.48		
Barriers to mammography ^d	20-39	21	1.84	0.85	3.23	.04
	40-49	90	1.93	0.76		
	50-59	12	1.35	0.30		
Self-efficacy ^e	20-39	21	3.23	1.19	1.50	.23
	40-49	90	3.54	0.66		
	50-59	12	3.63	0.84		
Cues to action ^e	20-39	21	4.00	1.10	0.09	.92
	40-49	90	4.06	0.59		
	50-59	12	4.10	0.73		

Note. Ratings based on 5-point Likert scale: 1 = *strongly disagree* to 5 = *strongly agree*.

^aScheffe post hoc tests: 3 > 1 ($p = .002$); 2 > 1 ($p = .002$); no other significant differences were found.

^bScheffe post hoc tests: 2 > 1 ($p = .13$); no significant differences were found.

^cScheffe post hoc tests: 2 > 1 ($p = .02$); no other significant differences were found.

^dScheffe post hoc tests: 2 > 3 ($p = .04$); no other significant differences were found.

^eScheffe post hoc tests: No significant differences at the $p < .05$ level.

Behavior of Seeking Screening-Mammogram and BSE

With the exception of 3 (2.4%) women, the other 123 (97.6%) women answered correctly to the knowledge and mammogram questions. The percentage of the participants who answered performing BSE once a week was 15.9%, those who responded twice a month was 7.1%, monthly was 46.0%, every 6 months was 13.5%, yearly was 7.9%, and never performed BSE was 9.5%. The results showed that most of

the participants performed BSE monthly. Table 12 describes the participants' frequencies and percent of association of suggestions to screening and breast cancer knowledge, Table 13 illustrates BSE frequency and percentage, and Table 14 displays the participants' frequencies and percent age at first mammogram.

Table 12

Association of Suggestions to Screening and Breast Cancer Knowledge

Suggestions to screening	<i>n</i>	Percent	<i>n</i>	Percent
Yes	120	97.6	3	100.0
No	3	2.4	0	0.0

Note. Fisher's Exact Test Probability = 1.00

Table 13

Frequency of Performing BSE

Performed BSE	Frequency	Percent
Once a week	20	15.9
Monthly	51	40.5
Twice a month	9	7.1
Every 6 weeks	17	13.5
Yearly	10	7.9
Never	12	9.5
Declined to answer	7	5.6
Total	126	100.0

Table 14

Age at First Mammogram

Age	Frequency	Percent
20	1	.8
25	2	1.6
30	4	3.2
32	1	.8
34	1	.8
35	7	5.6
38	3	2.4
39	2	1.6
40	59	46.8
41	3	2.4
42	7	5.6
43	2	1.6
45	18	14.3
46	1	.8
50	11	8.7
59	1	.8
Total	123	97.6
Missing system	3	2.4
Total	126	100.0

Intercorrelations for the Five Demographic and Behavioral Variables

Displayed in Table 15 are the intercorrelations for the five demographic and behavioral variables; 4 of 10 were significant. Specifically, the respondents' ages were positively correlated with their ages at their first mammography ($r = .25, p < .01$). The woman's education levels were positively correlated with their income levels ($r = .50, p < .001$). The women's education levels were negatively correlated with the frequency of performing BSE ($r = -.17, p < .05$) but positively correlated with their ages at first mammography ($r = .19, p < .05$).

Table 15

Intercorrelations for Demographics and Behavioral Variables

Variable	1	2	3	4	5		
Age	1.00						
Education	.16	1.00					
Income	-.01	.50	****	1.00			
Frequency performing BSE	-.10	-.17	*	.01	1.00		
Age at first mammogram ($n = 123$)	.25	**	.19	*	.12	-0.02	1.00

* $p < .05$ ** $p < .01$ *** $p < .005$ **** $p < .001$

Analysis of the Hypotheses

Hypothesis 1

Attitudes would have no significant relationship toward breast cancer screening and behavior. All but 3 participants (97.6%) reported having had breast cancer screening. Because of the extreme imbalance in the frequencies between the BSE-compliant women ($n = 123$) and the noncompliant women ($n = 3$), it was difficult to draw any conclusion from the 3 women who were not compliant. Therefore, this research question and the related hypothesis could not be addressed.

Hypothesis 2

African American women living in the Bayview area of San Francisco who were not knowledgeable about breast cancer screening would not utilize mammogram tests. To address this hypothesis, Table 12 (displayed earlier) showed the cross-tabulation table and related Fisher's exact test to test the relationship between knowledge and behavior. The Fisher's exact test was utilized instead of the more common chi-square test because three of the four cells in the cross-tabulation had fewer than 5 respondents (Munro, 2005).

As seen in the table, almost all of the participants were compliant and answered the knowledge question. There was no relationship between the two variables because all of the participants were compliant. One hundred and twenty of the 126 women had both the correct answer to the knowledge question and were compliant with receiving a breast cancer screening. The Fisher's exact probability was $p = 1.00$, which provided support to retain the null hypothesis that there was no relationship between knowledge and compliance with breast cancer testing experience.

Hypothesis 3

For African American women living in the Bayview area of San Francisco, their perceived barriers of breast cancer screening would not be related to their demographic characteristics. Table 16 displays the Pearson product-moment correlations for the six Attitude scores with the five demographic variables (age, education, income, frequency of self-examination, and age at first mammogram). For the resulting 30 correlations (6 Attitude scores multiplied by 5 demographic variables), 7 were statistically significant at the $p < .05$ level. Specifically, the older women had higher susceptibility scale scores ($r = .25, p = < .005$) and lower self-efficacy scores ($r = .21, p = < .05$). The women with more education had lower benefits of mammography scores ($r = -.21, p = < .05$); lower barriers to mammography scores ($r = -.33, p < .001$); and higher cues to action scores ($r = .24, p < .01$). The women's income levels were not significantly related to any of the six Attitude scores.

The women who reported a higher frequency of BSE had higher self-efficacy scores ($r = .40, p < .001$). The women who were older at the time of their first

mammogram had higher susceptibility scores ($r = .30, p < .001$). These findings provided partial support to reject Null Hypothesis 3 that attitudes were not related to demographics. The partial support for the hypothesis meant that of the 30 correlations, 7 (i.e., perceived susceptibility, self-efficacy, benefits of mammography, cues to action, income, and age at first mammogram) were significant to the hypothesis. Table 16 also illustrates that higher frequency was related to higher self-efficacy. The results showed that the women who were older at first mammogram had higher susceptibility and lower self-efficacy, the younger women had lower susceptibility and higher self-efficacy, and the women with higher levels of education had higher cues to action and lower barriers.

Table 16

Correlations of Scale Scores With Demographic Variables

Scale	Age	Education	Income	Frequency ^a	First ^b
Susceptibility	.25 ***	-.01	.02	.12	.30 ****
Seriousness	.10	-.13	.05	.05	.04
Benefits of mammography	-.08	-.21 *	-.11	.04	.08
Barriers to mammography	-.07	-.33 ****	-.05	.16	-.08
Self-efficacy	-.21 *	-.10	-.04	.40 ****	.05
Cues to action	.02	.24 **	.12	.02	.08

* $p < .05$ ** $p < .01$ *** $p < .005$ **** $p < .001$

^aFrequency of BSE: 1 = *Never* to 6 = *Weekly*

^bFirst: Age at first mammogram ($n = 123$)

Analysis of HBM Scales

In assessing the HBM scales, statistics showed that the participants who were older ($r = .25, p < .005$) had high susceptibility scale scores and scored low for self-efficacy ($r = -.21, p < .05$). The results revealed the participants with higher education such as college and graduate degree levels had decreased benefits of mammography

scores ($r = -.21, p < .05$) and lower barriers to mammography scores ($r = -.33, p < .001$) but high cues to action scores ($r = .24, p < .01$). The participants' income levels were not significantly related to any of the six Attitude scores. The participants with high frequency of BSE had higher self-efficacy scores ($r = .40, p < .001$). Even though all of the women complied, the provision of more education and awareness of breast cancer screening by health care providers is needed to emphasize the benefits of preventing breast cancer by utilizing breast cancer techniques. Continued education and awareness of breast cancer screening and preventive mechanism will help to decrease the prevalence and mortality rates of the disease.

Summary

This chapter displayed detailed data analysis from the findings. Presented was information on demographics and the HBM subscales. The results indicated that attitudes had no significant relationship to the breast cancer screening and behavior of a sample of African American women living in the Bayview area of San Francisco. The findings also showed that the women with higher levels of education had fewer benefits and barriers to mammography but higher cues to action score. The younger women had more self-efficacy.

Chapter 5 discusses the strengths and limitations of the study, implications for social change, and recommendations for action.

CHAPTER 5: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

This chapter provides information on the importance of the findings and their relationship to the purpose of the study. Also included is a review of the hypotheses, results, strengths and limitations of the study, implications for social change, and recommendation for action.

Review of Hypotheses

This study tested the following hypotheses:

H_{01} : Attitudes have no significant relationship toward breast cancer screening and behavior of African American women living in the Bayview area of San Francisco.

H_{02} : African American women living in the Bayview area of San Francisco who are not knowledgeable about breast cancer screening will not utilize mammogram tests.

H_{03} : For African American women living in the Bayview area of San Francisco, their perceived barriers of breast cancer screening would not be related to their demographic characteristics.

The findings showed that Null Hypothesis 1 could not be addressed because of the inconclusive findings in frequencies between the women who were compliant with BSE and those who were not. Null Hypothesis 2 was accepted; there was partial support for rejecting Null Hypothesis 3. The findings suggested that the women with higher

levels of education had low scores on the benefits to mammography and the women's income significantly did not relate to any of the six Attitude scores.

Research Results

The results indicated some rejection and acceptance of the null hypotheses of the study. Hypothesis 1 was inconclusive because almost all the participants complied with breast cancer screening and mammography. For Hypothesis 2, Fisher's exact test was used to test the relationship between knowledge and behavior. It showed that 123 of the 126 women answered the knowledge questions correctly and had received breast cancer screening. For Hypothesis 3, the Pearson product-moment statistical test was used to find the correlations between (a) the attitude scores of perceived susceptibility, perceived seriousness, and perceived benefits to mammography, perceived barriers to mammography, self-efficacy, and (b) cues to action with the demographic variables of age, education, income, frequency of BSE, and age at first mammogram. Seven of the correlations (i.e., perceived susceptibility, self-efficacy, benefits of mammography, barriers to mammography, cues to action, income, and age at first mammogram) were statistically significant ($p < .05$), meaning that the women who were older scored higher on the Susceptibility Scale and lower on the Self-Efficacy Scale ($r = -.21, p < .05$). The women with higher levels of education had low scores of benefits to mammography ($r = -.21, p < .05$) and lower barriers to mammography scores ($r = -.33, p < .001$).

For this study, 123 of the 126 participants answered the knowledge questions correctly and complied with having received breast cancer screening. This finding

concurred with Farmer et al.'s (2007) findings that their participants had "big levels of self-reported mammography screening" (p.121). In contrast, in a recent study by Okobia et al. (2006) on the knowledge, attitudes, and practices of community-dwelling Nigerian women toward breast cancer, the women reported having little or no knowledge of breast cancer, and of the 1,000 female participants, only 21.4% of the women had breast cancer knowledge, and 43.2% of the participants had done BSE within the past year. Similarly, Odusanya and Tayo (2001), in their study of breast cancer knowledge, attitudes, and practices among a sample of nurses in Lagos, Nigeria, found that the nurses had little knowledge of breast cancer screening and that only 8% of the 280 participants had received mammogram in the previous 3 years.

The results from these studies with Nigerian women (Odusanya & Tayo, 2001; Okobia et al., 2006) were different from the results on level of awareness regarding breast cancer and breast cancer screening among Indian teachers reported by Khokhar (2009). In that study, Khokhar found that of the 441 participants, 36% knew about BSE, but had no knowledge of performing BSE, and had never had a mammogram. Parsa et al. (2008) noted that 19% of the 425 participants in their study used BSE, 25% utilized CBE, and 13% utilized mammogram frequently. They also reported that the participants' behavior toward breast cancer screening was related to the frequency of their visits to their family doctors. Sadler et al. (2007) reported that the women in their study lacked knowledge of screening guidelines and that most of the women mentioned utilizing BSE, which they reported as a better screening method than mammography.

Accordingly, the participants' education and income levels had no significant relationship to their knowledge of breast cancer screening, when compared to the findings generated in the study by Okobia et al. (2006). Similarly, participants with higher levels of education and specialized occupations such as teaching and nursing scored higher on knowledge than the participants who did not have specialized jobs. The findings from two studies (Okobia et al., 2006; Parsa et al., 2008) concurred that the ages of the participants had no relationship to their knowledge of breast cancer screening.

Ham (2006), who conducted a study on the factors affecting mammography testing behavior and the intention of Korean women toward mammogram testing, found that age was significantly related to the participants' awareness of mammography and that income positively correlated with the participants' willingness to receive a mammogram. Ham believed that the participants with low-income paying jobs might not have utilized mammography because of their lack of health insurance coverage and the inability to pay for mammogram screening.

The results from the current study showed that the 126 African American women who participated in the study complied with breast cancer screening guidelines by utilizing BSE and mammogram. The results also showed that the women who had a high school education had higher barriers to mammography than the women who had some college education and those with graduate degrees. The participants with graduate degrees had higher cues to action than the participants with some college education. The reported knowledge of breast cancer screening and compliance with breast cancer screening guidelines revealed that of the 126 participants, 123 were compliant, indicating

that the participants had information relating to knowledge of breast cancer screening, irrespective of age, income, education, and the Attitude Scale.

In contrast, Memis et al. (2009) found that the majority of 244 students who participated in their study reported BSE knowledge from school, but had no knowledge of how to utilize BSE. The researchers further reported that as the students progressed in their education, their views toward BSE changed positively. Sadler et al. (2007), who studied the knowledge, attitudes, and screening practices of African American women toward breast cancer, concluded that even though 57% of the 1,055 female participants practiced BSE screening, most of the participants had little knowledge of mammography breast cancer screening.

In the current study, the participants had a positive attitude toward breast cancer screening, and most of the women reported that they practiced BSE and utilized mammography. Okobia et al. (2006) reported that the participants in their study utilized very few of the screening techniques; over 34% of the participants' utilized BSE, but none of the participants had a mammogram previously. In a study of Filipino-American women, Ko, Sadler, Ryujin, and Dong (2003) found that a barrier to not participating in screening educational programs has to do with not having enough time. The investigators opined that the lack of insufficient time could have been related to the participants' belief that there are certain things that people cannot control.

Kiguli et al. (2010) reported that the participants in their study had negative attitudes toward screening related to their scant knowledge of mammography and their misunderstanding of breast ultrasound as mammography. They also mentioned that the

participants felt ashamed after being examined by physicians who were not women. In contrast, Sadler, Ryujin, Ko, and Nguyen (2001), in their study of Korean women, found that the participants were not ashamed, even though they thought that feeling ashamed might have been a screening barrier for the participants.

Khadiga and Abdurrahman (2007) noted in their findings that most of the participants utilized BSE, which allowed the women to freely explore their own bodies. Chukmaitov et al. (2007) reported that the participants in their study had a nonnegative attitude in that majority of the participants performed BSE, but no mammogram, a fact attributed to the participants not receiving information about mammography from their health care specialists. Compared to the findings from Maxwell, Bancej, and Snider (2001), Chukmaitov et al.'s findings revealed that the majority of the participants did not get a mammogram because they thought that it was not important.

The majority of the participants (46.0%) in the present study performed BSE every 6 months, and demographic variables such as age were not linked to BSE. These findings were in agreement with the findings by Okobia et al. (2006). Similarly, in the study by Kiguli et al. (2010), the female participants practiced BSE more often because in their opinion, it was easy and free. Kiguli et al. maintained that the participants' did not practice mammography, because most of the participants might have had little income, making BSE more easily accessible and at no cost to the participants.

Ertem and Kocer (2009) noted that although age was significantly related to practicing BSE, there was no significant relationship between BSE practice and other sociodemographic variables. Compared to other studies, including the study by

Chukmaitov et al. (2007), the participants believed nonnegatively about mammography if their doctors told them to have one. Khadiga and Abdurrahman (2007) reported that their study participants' behavior toward not utilizing screening might have been attributed to their belief in God and evil.

Yucel et al. (2004) studied breast cancer screening among women awaiting mammography. They reported that most of the participants utilized BSE more than mammography, which could have been related to cost and the pain associated with the effect of radiation that the women would receive during screening. Yan (2009) noted that for the participants in his study, cost was a factor in utilizing mammography for the women who had little income. In the study conducted by Lin et al. (2008) to assess breast cancer and mammography screening beliefs among Chinese American immigrants, the findings revealed that perceived barriers played a significant role in that higher barriers meant that the women did not utilize mammography screening. Similarly, Wu, West, Chen, and Hergert (2005) maintain that Filipino and Chinese women in their study who earned higher incomes reported decreased barriers to mammogram testing. They opined that women need continued awareness, education, and information in order to be compliant with breast cancer screening guidelines. They also suggest that for women to maintain healthy lifestyle and remain healthful at all times, they need preventive mechanisms, adequate health care, and sufficient health insurance coverage.

The results from the current study were in agreement with Sadler et al.'s (2007) study relating to knowledge of breast cancer screening. In this study, all but 3 of the 126 women answered the knowledge questions correctly, an outcome that may have been

attributed to information disseminated about the dangers of breast cancer to African American women's health.

Study Strengths and Limitations

One of the strengths of the study was the utilization of the Champion Revised Susceptibility, Benefits, and Barriers Scale for Mammography Screening (CRSBBSMS), which was important in identifying the factors that affected the women's decision to use or refuse breast cancer screening. The CRSBBSMS provided broad-based questions on perceptions regarding breast cancer screening. Strength was the choice of a quantitative design for this study to assess whether the knowledge, attitudes, and beliefs of African American women in the Bayview area of San Francisco was significantly different from those of other women in the same area who complied with the recommended guidelines of the ACS and women who did not comply with them. Compared to other ethnic groups, African American women die more often from breast cancer; therefore, it is necessary to provide them with culturally appropriate interventions.

In addition to the limitations mentioned in chapter 1, a limitation arose during the process of data collection in that the researcher had difficulty obtaining a large sample size. The problem may have been that the researcher did not provide any compensation for the participants. Another limitation was that the small sample of African American women came from one location, namely, the Bayview area of San Francisco.

Recommendations for Action

The data identified the need for ongoing education and awareness of breast cancer screening, preventive mechanisms, and what needs to be done to help women to achieve

a healthy lifestyle. In the process of providing awareness, health professionals should emphasize the need to comply with recommended mammogram guidelines.

Implications for Social Change

The USPSTF (2009) has recommended that health care professionals not educate women on how to perform BSE, whereas the ACS has recommended that women ages 20 and older obtain information to recognizing how their breast should feel. The key is for health care professionals to provide information and education clearly and precisely to women who are interested in knowing how to conduct BSE. The results from this study showed that women who reported a higher frequency of BSE had higher self-efficacy scores.

The aim of public health is to improve the health and well-being of the population. This study is important because it aligns public health goals with breast cancer prevention. For health care providers to investigate breast cancer inconsistencies, decrease the incidence of the disease, and enhance the quality of life of people with breast cancer, it is important to understand women's attitudes, knowledge, and social screening behaviors. Women should utilize breast cancer screening for early detection in an effort to reduce the incidence and mortality rate of breast cancer. Public health officials need to close the gap and the disparity in health care among persons of every race, color, creed, gender, and ethnicity by ensuring proper health care for all. In addition, the social change dimension should include plans for physicians and patients to develop better relationships and enhance health care utilization among individuals.

Recommendations for Future Study

More preventive and educational practices will help promote breast cancer screening awareness among African American women. Health care professionals need to create culturally competent practices that will address the reasons African American women do not have breast cancer screening and provide strategies to eliminate those issues. Emphasis should be placed on interventions that will help promote and increase screening rates. In this study, different ways of providing information on screening were identified to promote screening among African American women in the Bayview area of San Francisco. Even though 123 of the 126 women who participated in this study complied with breast cancer screening, more education and awareness of the benefits of breast cancer screening will help to decrease the incidence and mortality of the disease to the population.

More research is needed on African American women in the Bayview area and breast cancer screening. The African American population is culturally diverse, with populations from Africa and the Caribbean. To have a full understanding of African American women's attitudes and behaviors regarding breast cancer screening, future studies should explore in depth the different origins of African American women to identify and develop appropriate interventions for the population. It is important to expand the study to other areas within the United States so that larger sample size can be used to generalize the results. I recommend that other studies include questions on insurance coverage to assess the impact of a lack of insurance coverage on health care services and breast cancer screening. This study did not address questions about insurance coverage.

It also is important to expand the study in terms of assessing the relationship between African American women and their physicians regarding breast cancer screening, especially with the new guidelines provided by the USPSTF (2009). The results could help in disease detection. Sadler et al. (2007) mentioned that in conjunction with the HBM, women's knowledge about breast cancer screening can be changed in order to help them to make choices that can benefit their health. Farmer et al. (2007) reported that breast cancer beliefs and perceived individual risk "arise out of a woman's knowledge about the disease" (p.122).

More programs providing information are needed to enhance knowledge of breast cancer and treatment for women, and provide information addressing barriers of breast cancer screening and the benefits of mammography screening. The results of this study indicated that the participants' attitude toward screening had no relationship to age, income, education, and the age when they received their first mammogram. Therefore, educational programs should continue to focus on providing all women, irrespective of age, income, education, and age of first mammogram, with information that addresses the issues presented by the women to promote their knowledge about screening.

This study followed a quantitative design. A qualitative follow-up study could explore the knowledge and perception of breast cancer screening of African American women living in the Bayview area of San Francisco. The results could be combined to identify possible ways of promoting breast cancer screening in an effort to decrease the mortality rate from cancer within the population.

Summary and Conclusion

Katz (2006) reported that the cancer death rate for African American women living in the Bayview area of San Francisco is higher than for women from other racial group. The purpose of this study was to assess the knowledge, attitudes, and behaviors regarding breast cancer screening of a sample of African American women living in the Bayview area of San Francisco. Despite numerous studies on African American women, little research has been conducted specifically on the utilization of breast cancer screening among African American women living in the Bayview area of San Francisco. The findings revealed no relationship between the women's knowledge and compliance, irrespective of their levels of education. The findings also showed the women's attitudes toward screening were not related to age, income, education, and age of first mammogram.

It is important to create intervention plan to enhance and promote breast cancer screening, with emphasis on mammography screening, to decrease the death rate from cancer. It is imperative to develop well-planned interventions with the goal of obtaining a healthy environment for all. Such an outcome is possible if health care providers work diligently to promote a healthy lifestyle.

Even though the USPSTF (2009) recommended that women in their 40s not utilize mammogram screening, but discuss with their physicians whether mammogram is right for them, I recommend that women develop a relationship with their physicians so that they can comfortably discuss issues about their health and the right action to follow. In order to promote screening, health education programs should focus on the positive effects of prevention while providing support for women in a culturally competent and

sensitive manner. More information in health education programs should include public service announcements focusing on women. Faith-based organizations, hospitals, clinics, and health centers should be encouraged to provide regular health education to women.

This study will add to the currently limited research on the knowledge, attitudes, and behaviors of African American women living in the Bayview area of San Francisco that impact their utilization of mammography screening. This study provided information indicating that the women are willing to adopt a positive behavior such as mammography screening while eliminating unhealthy behaviors. Health professionals should act on women's willingness to adopt a positive behavior to heighten breast cancer screening benefits.

REFERENCES

- Allday, E. (2007). *Breast cancer mortality studied in Black women*. Retrieved from http://articles.sfgate.com/2007-05-18/bay-area/17244885_1_breast-cancer-black-women-cancer-survival
- Agency for Healthcare and Quality Research. (2009). *Breast cancer recommendations*. Retrieved from <http://www.ahrq.gov>
- American Cancer Society. (2003). *Breast cancer facts and figures*. Retrieved from <http://www.cancer.org/acs/groups/content/@nho/documents/document/caff2003brfpwsecuredpdf.pdf>
- American Cancer Society. (2007). *Breast cancer*. Retrieved from <http://www.cancer.org/cancer/Breastcancer/overviewGuide/breast-cancer-overview-what-is-breast-cancer>
- American Cancer Society. (2008a). *How is breast cancer found?* Retrieved from www.cancer.org/cancer/Breastcancer/overviewGuide/breast-cancer-overview-diagnosed
- American Cancer Society. (2008b). *How many people get breast cancer?* Retrieved from www.cancer.org/cancer/Breastcancer/overviewGuide/breast-cancer-overview-key-statistics
- American Cancer Society. (2008c). *What is breast cancer?* Retrieved from <http://www.cancer.org/cancer/Breastcancer/overviewGuide/breast-cancer-overview-what-is-breast-cancer>
- Babbie, E. (2007). *The practice of social research* (11th ed.). Belmont, CA: Thomson Wadsworth.
- Bellamy, R. (2004). An introduction to patient education: Theory and practice. *Medical Teacher*, 26(4), 359-365.
- Bray, F., McCarron, P., & Parkin, D. M. (2004). The changing global patterns of female breast cancer incidence and mortality. *Breast Cancer Research*, 6(6), 229-239.
- Breast cancer.org. (2008). Types of breast cancer Retrieved from <http://www.breastcancer.org/symptoms/types>
- Centers for Disease Control and Prevention. (2006). *Breast cancer*. Retrieved from http://www.cdc.gov/cancer/breast/basic_info

- Champion, V. L. (1999). Revised Susceptibility, Benefits, and Barriers Scale for Mammography Screening. *Research in Nursing and Health*, 22, 341-348.
- Chukmaitov, A. Wan, T., Menachemi, N., & Cashin, C. (2008). Breast cancer knowledge and attitudes toward mammography as predictors of breast cancer preventive behavior in Kazakh, Korean, and Russian women. *International Journal of Public Health*, 53(3), 123-130.
- Creative Work Fund. (2003). *You can't do it alone: A public art collaboration raising breast health awareness in Bayview Hunter's Point*. Retrieved from http://www.creativeworkfund.org/modern/bios/anne_hamersky.html
- Creswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches* (2nd ed.). Thousand Oaks, CA: Sage.
- Darnell, J. S., Chang, C. H., & Calhoun, E. A. (2006). Knowledge about breast cancer and participation in a faith based cancer program and other predictors of mammography screening among African American women and Latinas. *Health Promotion Practice*, 7(2), 201s-212s.
- Detroit Community Academic Urban Research Center. (1996). *Research principles: Community based public health research principles*. Retrieved from http://www.Detroiturc.org/index.php?option=com_content&view=articles&id=4&Itemid=4
- Earp, J. A., Eng, E., O'Malley, M. S., Altpeter, M., Rauacher, G., Mayne, L., et al. (2002). Increasing use of mammography among older, rural African American women: Results from a community trial. *American Journal of Public Health*, 92(4), 645-654.
- Elmore, J. G., Armstrong, K., Lehman, C. D., & Fletcher, S. W. (2005). Screening for breast cancer. *Journal of the American Medical Association*, 293(10), 1245-1256.
- Erdelder, E., Faul, F., & Buchner, A. (1996). GPower: A general power analysis program. *Behavior Research Methods Instrument and Computer*, 28, 1-11.
- Ertem, G., & Kocer, A. (2009). Breast self-examination among nurses and midwives in Odem health district in Turkey. *Indian Journal of Cancer*, 46, 208-213.
- Farmer, D., Reddick, B., D'Agostino, R., & Jackson, S.A. (2007). Psychosocial correlates of mammography screening in older African American women. *Oncology Nursing Forum*, 34(1), 117-123.

- Fish, K. (2009). Invasive breast cancer incidence and mortality rates among women in Bayview and San Francisco County. Fremont, CA: National California Cancer Center.
- Friis, R. H., & Sellers, T. A. (2004). *Epidemiology for public health practice* (3rd ed.). Sudbury, MA: Jones and Bartlett.
- Glanz, K., Rimer, B. K., & Lewis, F. M. (2002). *Health behavior and health education: Theory, research, and practice* (3rd ed.). San Francisco: Jossey-Bass.
- Gregg, J., & Curry, R. H. (1994). Explanatory models for cancer among African American women at two Atlanta neighborhood health centers: The implication for a cancer screening program. *Social Science & Medicine*, 39(4), 519-526.
- Guidry, J. J., Mathews-Juarez, P., & Copeland, V. A. (2002). *Barriers to breast cancer control for African American women: The interdependence of culture and psychosocial issues*. Retrieved from <http://onlinelibrary.wiley.com/doi/10.1002/cncr.11016/full>
- Ham, O. K. (2006). Factors affecting mammography behavior and intention among Korean women. *Oncology Nursing Forum*, 33(1), 113-119.
- Hibbard, J. H., Greenlick, M., Jimison, H., Capizzi, J., & Kunkel, L. (2001). The impact of a community-wide self-care and medical care utilization. *Evaluation and the Health Professions*, 24(4), 404-423.
- Humphrey, L. L., Helfand, M., Chan, K. S. B., & Woolf, S. H. (2002). *Breast cancer screening: A summary of evidence*. Retrieved from <http://www.ahrq.gov/clinic/3rduspstf/breastcancer/brcannew.pdf>
- Kang, H. S., Thomas, E., Kwon, B. E., Hyun, M. S., & Jun, E. M. (2008). Stages of change: Korean women's attitudes and barriers toward mammography screening. *Healthcare for Women International*, 29, 157-164.
- Karayurt, Y. O., Dicle, A., & Malak, A. T. (2009). Effects of peer and group education on knowledge, beliefs, and breast self examination practice among university students in Turkey. *Turkish Journal of Medical Sciences*, 39(1), 59-66.
- Katapodi, M. C., Facione, N., C., Miaskowski, C., Dodd, M. J., & Waters, C. (2002). The influence of social support on breast cancer screening in a multicultural community sample. *Oncology Nursing Forum*, 29(5), 845-852.

- Katz, M. H. (2006). *Health programs in Bayview Hunter's Point and recommendations for improving the health of Bayview Hunter's Point residents*. Retrieved from <http://www.sfdph.org/dph/files/reports/StudiesData/BayviewHithRpt09192006>
- Khadiga, F. D., & Abdurrahman, A. M. (2007). Knowledge, attitudes, and practices surrounding breast cancer and screening in female teachers of Buraidah, Saudi Arabia. *International Journal of Health Sciences*, 1(1), 76-86.
- Kiguli, M. E., Mubuuke, A. G., Businje, F., Kawooya, G. M., Nakatudde, R., Byanyima, K. R., et al. (2010). Current knowledge, attitudes, and practices of women on breast cancer and mammography at Mulago Hospital. *Pan African Medical Journal*, 5(9), 1-19.
- Kinney, A. Y., Emery, G., Dudley, W. N., & Croyle, R. T. (2002). Screening behaviors among African American women at high risk for breast cancer: Do beliefs about God matter. *Oncology Nursing Forum*, 29(5), 835-843.
- Ko, A. H., Dollinger, M., & Rosenbaum, E. H. (2008). *Everyone's guide to cancer therapy: How cancer is diagnosed, treated, and managed day to day* (5th ed.). Kansas City, MO: Andrew McMeel.
- Ko, M. C., Sadler, R. G., Ryujin, L., & Dong, A. (2003). Filipina American women's breast cancer knowledge, attitudes, and screening behaviors. *Bio Med Central*, 3(27), 1-5.
- Khokhar, A. (2009). Level of awareness regarding breast cancer and its screening amongst Indian teachers. *Asian Pacific Journal of Cancer Prevention*, 10, 247-250.
- Lawvere, S., Mahoney, M. C., Symons, A. B., Englert, J. J., Klein, S. B., & Mirand, A. L. (2004). Approaches to breast cancer screening among nurse practitioners. *Journal of the American Academy of Nurse Practitioners*, 16(1), 38-43.
- Lin, F. H., Menon, U., Pett, M., Nail, L., Lee, S., & Mooney, K. (2008). Measuring breast cancer and mammography screening beliefs among Chinese American immigrants. *Western Journal of Nursing Research*, 30, 853-868.
- Litaker, D., & Tomolo, A. (2007). Association of contextual factors and breast cancer screening: Finding new targets to promote early detection. *Journal of Women's Health*, 16(1), 36-45.
- Lostao, L., Joiner, T. E., Pettit, J. W., Chorot, P., & Sandin, B. (2001). Health beliefs and illness attitudes as predictors of breast cancer screening attendance. *European Journal of Public Health*, 11(3), 274-279.

- Maxwell, C. J., Bancej, C. M., & Snider, J. (2001). Predictors of mammography use among Canadian women aged 50-69: Findings from the 1996/97 National Population Health Survey. *Canadian Medical Association Journal*, 164(93), 329-334.
- McCormick-Brown, K. (1999). *Health belief model*. Retrieved from <http://www.jblearning.com/samples/0763743836chapter4.pdf> Reflecting over the
- Memis, S., Balkaya, N. A., & Demirkiran, F. (2009). Knowledge, attitudes, and behaviors of nursing and midwifery students regarding breast self-examination in Turkey. *Oncology Nursing Forum*, 36(1), 39-46.
- Montazeri, A., Vahdaninia, M., Harirchi, I., Harirchi, A. M., Sajadhan, A., Khaleghi, F., et al. (2008). Breast cancer in Iran: Need for greater women effective screening methods. *Asia Pacific Family Medicine*, 7, 6.
- Munro, B. H. (2005). *Statistical methods for healthcare research* (5th ed.). Philadelphia, PA: Lippincott Williams & Wilkins.
- Nahcivan, N. O., & Secginli, S. (2007). Health beliefs related to breast self-examination in a sample of Turkish women. *Oncology Nursing Forum*, 34(2), 425-432.
- National Cancer Institute. (2007). *SEER cancer statistics review*. Retrieved from http://cancer.gov/csr/1975_2007/
- National Cancer Institute. (2009b). *SEER fact sheet*. Retrieved from <http://www.seer.cancer.gov/statfacts/html/breast.html>
- Odusanya, O. O. (2001). Breast cancer: Knowledge, attitudes, and practices of female schoolteachers in Lagos, Nigeria. *Breast Journal*, 7(3), 171-175
- Odusanya, O. O., & Tayo, O. O. (2001). Breast cancer knowledge, attitudes, and practices among nurses in Lagos, Nigeria. *Acta Oncologica*, 40(7), 844-848.
- Okobia, M. N., Bunker, C. H., Okonofua, F. E., & Osime, U. (2006). Knowledge, attitudes, and practice of Nigerian women towards breast cancer: A cross-sectional study. *World Journal of Surgical Oncology*, 4, 1-11.
- Parsa, P., Kandiah, M., Zulkefli, N. A. M., & Rahman, H. A. (2008). Knowledge and behavior regarding breast cancer screening among female teachers in Selangor, Malaysia. *Asian Pacific Journal of Cancer Prevention*, 9, 221-228.

- Sadler, G. R., Ko, C. M., Cohn, J. A., White, M., Weldon, R., & Wu, P. (2007). Breast cancer knowledge, attitudes, and screening behaviors among African American women: The Black Cosmetologists Promoting Health Program. *Biomed Central Public Health*, 7, 1-10.
- Sadler, G. R., Ryujin, L. T., Ko, C. M., & Nguyen, E. (2001). Korean women: Breast cancer knowledge, attitudes, and behaviors. *Bio Med. Central Public Health*, 1(7), 1-6.
- Sadler, G. R., Takahashi, M., Ko, C. M., & Nguyen, T. (2003). Japanese American women: Behaviors and attitudes toward breast cancer education and screening. *Health Care for Women International*, 24, 18-26.
- Sassi, F., Luft, H. S., & Guadagnoli, E. (2006). Reducing racial ethnic disparities in female breast cancer screening rates and stage at diagnosis. *American Journal of Public Health*, 96(12), 2165-2172.
- Smith-Bindman, R., Miglioretti, D. L., Lurie, N., Abraham, L., Barbash, R. B., Strzelczyk, J., et al. (2006). Does utilization of screening mammography explain racial and ethnic differences in breast cancer? *Annals of Internal Medicine*, 144(8), 541-553.
- Su, X., Ma, X G., Seals, B., Tan, Y., & Hausman, A. (2006). Breast cancer early detection among Chinese women in the Philadelphia area. *Journal of Women's Health*, 15(5), 507-519.
- Underwood, S. M. (2006). Breast cancer in African American women: Nursing essentials. *Association of Black Nursing Faculty Journal*, 17(1), 3-14.
- U.S. Preventive Services Task Force. (2002). *Screening for breast cancer*. Retrieved from <http://www.ahrq.gov/clinic/3rduspstf/breastcancer/brcannew.pdf>
- U.S. Preventive Services Task Force. (2009). *Independent task force updates recommendations on breast cancer screening*. *NCI Cancer Bulletin*, 6(22). Retrieved from <http://www.cancer.gov/ncicancerbulletin/111709/page2>
- Webster's new world dictionary*. (2003). Cleveland, OH: Wiley.
- Wood, M. (2008). Theoretical framework to study exercise motivation for breast cancer risk reduction. *Oncology Nursing Forum*, 35(1), 89-95.

- Wu, T. Y., West, B., Chen, Y. W., & Hergert, C. (2005). Health beliefs and practices related to breast cancer screening in Filipino, Chinese, and Asian-Indian women. *Cancer Detection and Prevention, 30*, 58-66.
- Yan, Y. Y. (2009). Breast cancer: Knowledge and perceptions of Chinese women in Hong Kong. *Global Journal of Health Science, 1*(2), 97-105.
- Yucel, A., Degirmenci, B., Acar, M., Ellidokuz, H., Albayrak, R., & Haktanir, A. (2004). *Knowledge about breast cancer and mammography in breast cancer screening among women awaiting mammography. Turkish Journal of Medical Science, 35* (1) 35-42 Retrieved from <http://journals.tubitak.gov.tr/medical/issues/sag-05-35-1/sag-35-1-6-0409-8.pdf>

APPENDIX A: PERMISSION TO USE INSTRUMENT

Dear Ms. Uwuseba – Please send you address and we will mail the instruments to you along with permission to modify the tool as long as you cite Dr. Champion's work.

Thank you --

Darlene

From: Champion, Victoria L
Sent: Thursday, January 31, 2008 1:34 PM
To: Gettle, Georgette Darlene
Subject: FW: breast cancer screening survey questions

Victoria L. Champion, DNS, RN, FAAN

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From: Yfegor@aol.com [mailto:Yfegor@aol.com]
Sent: Thursday, January 31, 2008 1:19 PM
To: Champion, Victoria L
Subject: breast cancer screening survey questions

Dear Ms. Champion,

My name is Lilian Uwuseba, a doctoral student in public health at Walden University. My research topic for my dissertation is on Attitudes, behavior, and knowledge of breast cancer screening in African American women in San Francisco. I have read articles of those who mentioned using your survey questions, I have been trying to access the articles to see the survey questions, but cannot. I would be honored if you could please inform me where I can be able to access the survey questions, and secondly, may I be authorized to use the survey questions for my research?

Thank you so much and looking forward to hearing from you.

Sincerely,

Lilian Uwuseba

APPENDIX B: PERMISSION TO USE INSTRUMENT



INDIANA UNIVERSITY

SCHOOL OF NURSING
IUPUI

February 5, 2008

Ms. Lilian Uwuseba
1610 Summer Lane
Richmond, CA 94806

Dear Ms. Uwuseba,

Thank you for your interest in my work. Enclosed are the instruments you requested and the revised instrument article. You have permission to revise the tool for your use as long as you cite my work and send me an abstract of your completed project.

Sincerely,

A handwritten signature in blue ink that reads "Victoria Champion".

Victoria Champion, DNS, RN, FAAN
Associate Dean for Research
Mary Margaret Walther Distinguished Professor of Nursing
Edward W. and Sarah Stam Cullipher Endowed Chair
Program Leader: Cancer Prevention and Control

VC:dg

Enclosure

APPENDIX C: BREAST CANCER SURVEY

The questions below have to do with your feelings regarding thoughts about chances of getting breast cancer. Please choose one answer for each question using 1 as “strongly disagree” to 5 “strongly agree.”

1. It is extremely likely that I will get breast cancer in the future
(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)
2. I feel I will get breast cancer in the future
(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)
3. There is a good possibility I will get breast cancer in the next 10 years.
(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)
4. My chances of getting breast cancer are great.
(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)
5. I am more likely than the average woman to get breast cancer.
(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)
6. The thought of breast cancer scares me.
(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)
7. When I think about breast cancer, my heart beats faster.
(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)
8. I am afraid to think about breast cancer.
(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)
9. Problems I would experience with breast cancer would last a long time.
(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)
10. Breast cancer would threaten a relationship with my boyfriend, husband, or partner.
(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)
11. If I had breast cancer my whole life would change.
(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)
12. If I developed breast cancer, I would not live longer than 5 years.
(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)
13. When I get a recommended mammogram, I feel good about myself

(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)

14. When I get a mammogram, I don't worry as much about breast cancer.

(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)

15. Having a mammogram or x-ray of the breast will help me find lumps early.

(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)

16. Having a mammogram or x-ray of the breast will decrease my chances of dying from breast cancer.

(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)

17. Having a mammogram or x-ray of the breast will decrease my chances of requiring radical or disfiguring surgery if breast cancer occurs.

(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)

18. Having a mammogram will help me find a lump before it can be felt by myself or a health professional.

(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)

19. Having a routine mammogram or x-ray of the breast would make me worry about breast cancer.

(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)

20. Having a mammogram or x-ray of the breast would be embarrassing.

(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)

21. Having a mammogram or x-ray of the breast would take too much time.

(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)

22. Having a mammogram or x-ray of the breast would be painful.

(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)

23. Having a mammogram or x-ray of the breast would cost too much money.

(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)

24. I know how to perform breast self – examination.

(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)

25. I am confident I can perform breast self-examination correctly.

(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)

26. If I were to develop breast cancer I would be able to find a lump by performing breast self-examination.

- (1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)
27. I am able to find a breast lump if I practice breast self-examination alone.
(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)
28. I am able to find a breast lump which is the size of a quarter.
(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)
29. I am able to find a breast lump which is the size of a dime.
(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)
30. I am able to find a breast lump which is the size of a pea.
(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)
31. I am sure of the steps to follow for doing breast self-examination.
(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)
32. I am able to identify normal and abnormal breast tissue when I do breast self-examination.
(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)
33. When looking in the mirror, I can recognize abnormal changes in my breast.
(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)
34. I can use the correct part of my fingers when I examine my breasts.
(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)
35. I want to discover health problems early.
(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)
36. Maintaining good health is extremely important to me.
(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)
37. I search for new information to improve my health.
(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)
38. I feel it is important to carry out activities which will improve my health.
(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)
39. I eat well balanced meals.
(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)
40. I exercise at least 3 times a week.
(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)

41. I have regular health check-ups even when I am not sick.
(1. Strongly disagree) (2. Disagree) (3. Neutral) (4. Agree) (5. Strongly agree)

Below is information on how scale was divided:

- A. Questions 1-5 are related to the HBM construct of susceptibility
- B. Questions 6-12 are related to the HBM construct of seriousness
- C. Questions 13-18 are related to the HBM construct of benefits of mammography
- D. Questions 19-23 are related to the HBM construct of barriers to mammography
- E. Questions 24-34 are related to the HBM construct of self-efficacy
- F. Questions 35-41 are related to the HBM construct of cues to action

APPENDIX D: COVER LETTER

Dear (Participant Name)

My name is Lilian Uwuseba, a doctoral student in public health at Walden University. I am conducting a survey to identify the knowledge, attitudes, and behavior of African American women ages 40 and older residing in the Bayview area of San Francisco toward breast cancer screening. I would appreciate it if you could please offer a minute or two of your time.

Attached to this letter is a questionnaire that I would like you to complete. The information that you give will be kept confidential and private. The questions are designed so that no answer is correct or incorrect. It will take no more than 15 minutes of your time to complete this questionnaire.

I would appreciate your participation in this study, which will help to provide more information and knowledge regarding the concerns of African American women in the Bayview area. The results from this study may help health care professionals to design appropriate programs for breast cancer screening for African American women residing in the Bayview area of San Francisco. If you have any questions regarding the study or survey, please feel free to contact me at the contact information provided below.

Thank you for your cooperation

Lilian Uwuseba
1610 Summer Lane
Richmond, California 94806.
Phone #: 510-213-2115
Email: lilian.uwuseba@waldenu.edu

APPENDIX E: DEMOGRAPHIC SURVEY

Please state your age: _____

Highest Level of Education:

- High School
- Some College
- College Graduate
- Graduate Degree

What is your income range?

- 35,000- 40,000
- 40,000- 45,000
- 45,000-50,000
- 50,000-55,000
- 55,000-60,000
- 60,000-75,000
- Over 75,000
- Other

How often do you perform Breast Self Examination?

- Once a week
- Monthly
- Twice a month
- Every six months
- Yearly
- Never
- Declined to answer

Have you ever had a mammogram?

- Yes
- No

How old were you when you got your first mammogram? _____

Is mammography and Breast self examination effective in decreasing breast cancer death rate?

- Yes
- No

CURRICULUM VITAE

LILIAN UWUSEBA

QUALIFIED BY: Years of experience as a program director in a health/mental health organization with consistently increasing experience in change management, strategic planning, statistical reports, contract review/compliance, evaluation, and certification, and increasing responsibility in program management, staff training, client needs analysis, supervision, and program development/implementation. Substantial experience in research design; data collection; and social marketing skills, evaluation, and monitoring.

EDUCATION:

- Ph.D. in Public Health, Walden University, Minneapolis, MN.
- M.P.H., Walden University, Minneapolis, MN.
- Master's of Public Administration degree in Public Administration/HealthCare Management, Keller Graduate School of Management, San Francisco, CA.
- B.A. in sociology, Stephen's College, Columbia, MO.
- Des Moines Area Community College, Boone, Iowa

EXPERIENCE:

2008-Present Program Director, Epiphany Center, San Francisco, CA.

2006-2006 Social service Director, Country Villa nursing home, San Rafael, CA

2000-20004 Program Director, Conard House, Inc. CA.

1997-1998 Head Teacher, Alacosta Center, CA

