2019

The Impact of Access, Socioeconomic Status, and Education, on Breast Cancer Screening in Boston, MA

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
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Doctoral Dissertation Submitted in Partial Fulfillment
of the Requirements for the Degree of
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Abstract

In Boston Massachusetts, Black and White women aged 50-74, experience limited access to breast cancer screening. The purpose of this quantitative study was to investigate whether there is a correlation between breast cancer screening access to personal healthcare providers among Black and White women, aged 50- 74, in Boston, MA. The study focused on whether there was a correlation between breast cancer screening access and socioeconomic status among women, and whether a correlation existed between breast cancer screening and their educational levels. The study was informed by the health belief psychological framework. The study consisted of secondary data from the Behavioral Risk Factor Surveillance System with a sample size of n =1815, 18 years and above. Exclusion criteria consisted of adults under age 40, women above age 74 diagnosed with cancer, and had mastectomies previously. A chi square test examined the relationship between the independent and dependent variables. The key results showed a significant relation between race and access to healthcare providers. The study also found a significant relationship between low income levels and limited access. The study results portrayed a nonsignificant relationship between breast cancer screening and educational levels among black and white women. The results concluded that access to healthcare providers was significant among the races as well as their income levels. The study contributes to social change by promoting awareness through education of individuals, communities, organizations and the society at large.

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Dedication

The present study is dedicated to two individuals in my family life, my late mom, Julia- John Odibo, and my late sister in-law, Dr. Chinyere, Nwogu Odibo, whose lost battles to metastasized breast cancer during their middle thirties, stand at the center of inspiration for focusing on this topic. My sister in-law received her PhD in Organic Chemistry, on her death bed three months following the diagnosis of breast cancer.

Acknowledgments

First, I thank God Almighty for guiding me throughout the process of this study. I am thankful for the support I received from all our children—Ogadimma, Nnamdi of blessed memory, Ijeoma our only daughter, whose support is unquantifiable, and Chisom who typed most of this work for me. My grand -children, Kenny, Tobby, Adorable, Zizi, and Kaira, your regular video phone calls were invaluable in uplifting my morale at every stage of the study, and my niece Sandra, thank you all.

My loving and beloved husband, Professor Chukwuma Azuonye, my gratitude is immense. Your encouragement is immeasurable, especially in moments of writer's block. You made me rest listening to music before bouncing back! You remained my rock during the period of the loss of my two siblings within two years during this study. Their passing created a huge vacuum in my life. You stood by me.

My special recognition goes to my youngest brother, Brigadier General I.E. Nwogu. You were only 8 months old when our mom passed with breast cancer. You also lost your talented wife, who received her PhD on her death bed within 3 months of detection of breast cancer. This was part of the reason I decided to emphasize this area for early breast cancer screening to empower women. To my late mom, Julia when you passed with breast cancer at 35 years, I knew virtually nothing about breast cancer. Mom I now do. To my late dad, John Odibo you always told me that nothing I want to do in life is far from me. Dad thank you for inspiring me and for believing so much in me.

To my Committee Chair, Dr. Nazarene Tubman, you responded promptly to my concerns throughout this study. You encouraged me at every stage. I found your critical comments on my work not only inspirational but empowering in grasping the essence of my Dissertation with clarity. I thank you very much. Your pedagogy is superb. To Dr. Rabeh Hijazi, you taught me, and I enjoyed your class tremendously, and was simply lucky to continue to benefit from your wise counsel as my Committee Member. Thank you very much for all your encouragement. To Dr. Mountasser B. Kadrie, my URR Review Committee Member, thank you. Dr. Lee M. Stadtlander, CAO designee, thank you for your prompt evaluation. To my academic advisor Bridgette Williams, and all the team, thank you. To my beloved friends— Dr Amara Onujiorgu, Rev. Ndubisi Azubuine, Lady Gold Odor, Lady Adaora Okwerekwu, Lady Onyeka Jones, and Prince Felix Okwesa, thank you all for your encouragement, love and support. I appreciate you all.

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Section 1: Foundation of the Study and Literature Review

Introduction

This study was an examination of breast cancer screening access to mammography among Black and White women, aged 50-74 in Boston, Massachusetts. The focus population comprises the two most dominant racial-ethnic communities in the City of Boston Massachusetts, Black and White women. Included in both categories of the target population are native-born citizens and recent immigrants from Africa and Europe, respectively. As indicated by Boston Massachusetts Population (2019), these two groups constitute well over 33 % of the entire health population of the City of Boston Massachusetts. They encompass all the demographic characteristics of both the center and periphery of the metropolis. According to Kwok et al., (2016), the incidence of breast cancer screening access among Black women is lower than among the White women. Kwok, et al. (2016) cited late detection among African American women as due to non-participation in mammogram programs as impediments, due to health insurance cost, among others.

In the segments that follow, I described the problem of the study and the screening access more fully, as well as the factors pertaining to the resistance to such screening. The section includes definitions of key terms, a statement of the scope and delimitations of the study, a discussion of its assumptions and significance, and finally a summary and some conclusions.

Problem Statement

This study focused on examining breast cancer screening access to mammography services of Black and White women, aged 50-74 in Boston, Massachusetts. In this Study, I evaluated access to healthcare providers, whether cost affected the women's ability to see their doctors, and whether they have had mammography within the past 2 years. Sixty-two percent of most breast cancers are localized, 6 -% of the cases diagnosed have metastasized, and 70- % of new cases diagnosed are among women 55 and older, according to Kaiser (2018), who attributed the disparities to the differences at the stage of diagnosis, in access to mammography, follow -up care, and treatment. The Center for Disease Control (CDC), (2013) suggested that compared with White women, Black women have lower rates of getting breast cancer and higher rates of dying from it. Patel et al, (2014) identified limited access, health insurance coverage, socioeconomic status, and low levels of education attainment, as hindrances to breast cancer screening among women.

Nonzee et al., (2014) highlighted concerns over systemic barriers, especially poor access to primary care physicians, as a major hindrance for women's mammography whereas - Coughlin (2014) asserted that Black and White women's differences in access to mammography play a role as women who had a regular healthcare provider are likely to receive a recommendation to mammography. The National Cancer Institute, (NCI) (2015) suggested that women who have no access to breast cancer screening have a higher mortality rate than those women who have such access, emphasizing that Black women have a higher breast cancer mortality than their White counterparts. Ramachandran et al. (2015) asserted that women with barriers to breast cancer screening access, are more likely to be older, Black, and on public or no health insurance, compared to White women. According, to the Behavioral Risk Factor Surveillance System (BRFSS, 2016), 85% of White women (Non- Hispanic) and 83% (Black) women in the Commonwealth of Massachusetts, aged 50—74, reported having mammography in the past 2 years, 92% of White women had healthcare providers who they could see as needed, whereas 88-% of Black women could not see their provider due to cost. Physician's recommendation is one of the strongest predictors of breast cancer screening access to services for women with continuity care providers. Coughlin (2014), stated that decreasing disparities and facilitating access to breast cancer screening will begin to close the gap in such health services.

Purpose of the Study

The purpose of this study was to examine breast cancer screening access to mammography services of Black and White women, aged 50-74, in Boston, Massachusetts. The study also evaluated whether correlation exists between breast cancer screening access and healthcare providers for the target populations, whether cost, socioeconomic status, and education affected Black and White women's ability to see their doctors, and whether they had had mammography within the past 2 years. Ragas et al. (2014) indicated that women's voices have remained underrepresented in breast cancer screening access interventions among low income populations. Ragas et al, cited recommendations for improving access to screening mammography among the 60% Black women, and 25% White women. Ragas et al. further recommended addressing delays caused by high patient volume—preventive services, insurance coverage and adjusting screening guidelines, overall these researchers stated that patient engagement is a facilitator of access to breast cancer screening, and that policy changes regarding breast cancer screening cost - and health insurance will -facilitate screening access.

The Massachusetts Medical Society (MMS) (2017), has pledged to address system -wide mechanisms to control the forces responsible for escalating healthcare costs, particularly in breast cancer screening access and prevention. MMS asserted that universal access to care services in Massachusetts is consistent with the Commonwealth cost containment objectives. However, the MMS has suggested that some patients are still struggling with healthcare costs, that are often rising faster than wages are, adding that despite high rates of insurance coverage, patients’ cost sharing remained high, particularly for families with lower incomes.

BRFSS (2016) stated that information gathered from the survey helps in developing health policy and legislation, and in measuring the effectiveness of programs, such as breast cancer screening access, towards reaching state and national goals. BRFSS (2016) survey in Massachusetts identified 86 % of women aged 50-74 having had mammogram in the previous 2 years, 85 % of White women (non- Hispanic) and 83 % Black women (non- Hispanic), reported that they had mammography in the past 2 years.

92 % of White women had healthcare provider who they could see as needed, while 88% of Black women could not see the doctor due to cost.

The Agency for Healthcare Research and Quality Report (AHRQR) (2018), tried to address the disparities among the Black and White women, in screening mammography. AHRQR suggested that interventions that address physical barriers, to breast cancer screening access should assist patients from priority populations, to navigate patient-provider relationship and the larger health system and cited these as important to care services. Strom et al., (2018) emphasized that support from management and leadership is needed in order to promote interprofessional work in breast cancer screening access, which will benefit healthcare professions, professionals, and the patient. To reduce barriers to access for breast cancer screening, the workforce should liaise with leading community members to spread the word about the availability of breast cancer screening and its usefulness in saving lives.

Zhao et al., (2018) advocated for breast cancer screening access among women, and greater efforts to increase screening rates and decrease disparities in breast cancer screenings. These are important strategies that Zhao et al. asserted will help improve overall population health. Healthy People (2020) initiative projects three steps to access towards mammography-: (a) entrance into the healthcare system, (b) obtaining proper services at the right location, and (c) establishing and maintaining a relationship with trusted provider with whom the patient can communicate.

Significance of the Study

This study, which examined breast cancer screening access to mammography services among Black and White women, aged 50-74, in Massachusetts, is the first of its kind. Other studies have looked at aspects of breast cancer screening in African American women alone or other minorities but have not concentrated on the two racial ethnic communities as in this study. Therefore, the study will contribute to filling this gap and help policy makers and researchers, among others, to close the disparity gap, as well as help in the treatment, prevention and recommendations to breast cancer screening access for the population of this demographics.

This study was also significant because of its evaluation of the target population's access to their healthcare providers. Determining whether cost affected the women's ability to visit their doctors or even to have mammography within the past 2 years, contributes to a better understanding of the prevention and treatment of cancer, which ultimately will save lives and cost. Finally, the results of this study emphasized that there is a relationship between breast cancer screening access to healthcare providers of the target populations, their socioeconomic status, and their education. Understanding this relationship will also play a vital role in researchers' guidelines and recommendations for healthcare providers and their patients.

Background to the Study: Brief Overview of Breast Cancer

To obtain breast cancer screening care in the healthcare system in Boston, the Commonwealth of Massachusetts, Black and White women must first enter into the system. They must have access to care. The Agency Healthcare Quality and Disparities Report (AHQDR) ((2018) stated that breast cancer can be diagnosed at different stages of development, and when diagnosed early enough before metastasis, it stands a good chance to treatment and cure. The AHQDR, (2018) also indicated that cancers treated late with extensive spread, often have a poor prognosis and that mammography remains the most effective method for detecting breast cancer at its early stages. To facilitate early screening practices, the administrative staff of the healthcare leadership have the responsibility of assessing women, who present themselves for breast cancer screening, to ensure that there are no barriers towards access to screening.

The CDC (2017) suggested that a close interview with the women could establish whether they have primary care doctors, who will recommend mammography. The staff should note whether the women have insurance coverage, because lack of insurance coverage affects access to the service. As Pinn, (2017) suggested, students studying to be health professionals to vulnerable populations should be exposed to the cultural traditions and belief systems, of these populations, to prepare them to understand and manage the challenges they face. Cohen (2019) emphasized the importance of the workforce knowing how much information their patients have, and whether there are other barriers that could impede the reception of breast cancer screening, such as psychosocial-fear, embarrassment and logistics. Cohen further cited communications between the healthcare professionals and the patients as helping to increase mammography rates. The CDC emphasized that being culturally sensitive is crucial in this regard, and that personal barriers include cultural or religious differences, not knowing what to do or when to seek care, mistrust or concerns about confidentiality or discrimination.

Cultural sensitivity, lack of knowledge as to when to seek care, and concerns about confidentiality are critical to gaining access to breast cancer screening, and so the staff should engage in educating the target population and allaying their fears about what they consider as the unknown. The CDC (2017) indicated that leadership strategic planning and interventions, are required to encourage the women, and to improve their access to participation in breast cancer screening, as well as to increase breast cancer screening rates. The (BRFSS)(2016) suggested that enough resources for cancer screening need to be allocated for the benefit of the target population, and that this is where the service leadership must get involved in policy changes, which could benefit the women unable to meet the cost, as lack of resources impairs breast cancer screening in Massachusetts. The CDC -pointed out that using reminders, giving radio or - television information about programs, highlighting breast cancer screening access, and providing one-on -one education personally or by telephone, could be effective intervention to increase breast cancer screening access and rates.

Communities, healthcare leadership can indeed generate numbers of people who have undertaken breast cancer screening or those who have not due to access difficulties. Such numbers will be useful in a thorough-going attempt to reach those who for one reason or another have not presented themselves for screening, and thus provide a clear understanding of the number of women among the target populations who do not present themselves for breast cancer screening. A critical goal is to discover those impediments that hinder the women’s screening access to mammography and address them accordingly, to facilitate the reception of such services.

Breast Cancer Screening Access Among Black and White Women in Massachusetts.

BRFSS (2016) indicated that in Massachusetts, historically, the levels of breast cancer screening remain far below the goals set by Healthy People 2020, and that disparities occur in breast cancer screening access due to socioeconomic status, access, race, and ethnicity. BRFSS, (2016) further suggested that disparities in breast cancer screening are due to a complex of factors, and cited access as the most important. The most important barrier leading to the paucity of access to breast cancer screening and disparities among Black and White women in Massachusetts healthcare organizations is lack of insurance coverage. Massachusetts has been at the frontline of health care reform through its mandatory state-wide health insurance program – the “Massachusett’s Health Care Reform” (2006), had been rightly recognized as a precursor of the federal “Affordable Care Act” by Waldman, (2010). The Accountable Care Act, which is the Patient Protection and Affordable Care Act- (PPACA, 2010) according to Waldman, responded by expanding access to healthcare cancer screening practices and diagnosis for women. Through Medicare and Medicaid respectively, ACA has mandated the provision of coverage for preventive breast cancer screening and the same service for women with incomes at or below 138% of the Federal poverty level. This expansion seems to be somewhat helpful for providing access to breast cancer screening among the women.

BRFSS (2016) stated that, despite this provision, there are still substantial out- of – pocket costs for breast cancer screening left for these individuals to offset—20% of the cost of screening services, copays, and plan deductibles. BRFSS, suggested that new opportunities for access offered by the ACA dismantled potential cost barriers to preventive services, and that existing disparities in breast cancer screening may be expected to widen. At this juncture, the healthcare administration, through the integrated system must collaborate effectively with all professionals to address the problems of impediments that create the services disparities among the target populations.

The NHQDR (2018) indicated that cancers treated late with extensive spread, often has poor prognosis. They also asserted that mammography remains the most effective method for detecting breast cancer at its early stages before symptoms develop, and that opportunity for early access to mammography plays an important role in this situation.

Healthcare administrative leadership has the responsibility to ensure that these populations are positioned for early breast cancer screening practices. Team- work within the administration is key. Critical evaluation and assessment of internal, external, and personal factors would unveil to them whether the target populations are able to access breast cancer screening or not. The CDC (2017) suggested that barriers to the reception of breast cancer screening, namely, financial, structural, personal, and logistics, need to be urgently investigated and addressed. In addition, the CDC stated that personal barriers include cultural or religious differences, language barriers, not knowing what to do or when to seek breast cancer screening service, mistrust, or concerns about confidentiality or discrimination.

Healthcare professionals deal with individuals from various cultural backgrounds. As Papadopoulos (2016) asserted, the capacity to provide effective and compassionate healthcare requires consideration of people's cultural beliefs, behaviors and needs. As a follow-up, they should find out where the barriers are to ensure that defaulting individuals are located and directed to where they could have breast cancer screening access. They can do that through the agency of the stakeholders—community leaders with personal contacts with members of the community and who are well-known to have the power to enforce traditional patterns of beneficial interrelationship at the grassroots. Through such organizations, healthcare leadership can indeed generate numbers of people that have undertaken breast cancer screening or those that have not. Such numbers would be useful in a thorough going attempt to reach those who for one reason or another have not presented themselves for screening and thus give us a better understanding of the number of women that do not present themselves for breast cancer screening. We can see this gap in research and the necessity to address it urgently.

The healthcare workforce must connect the women to the primary care providers who should refer them for mammography screening, the staff should direct them to mammography department to schedule appointments to be screened for breast cancer. As advocates, healthcare administrators must liaise with stakeholders and policy makers to generate policies that will dismantle services disparities among White and Black women to receive breast cancer screening. Administration should also inform women about the CDC's Prevention Breast Cancer Early Detection Program for free breast cancer screening if needed.

The World Cancer Research Fund International, (2015) estimated that more than one-third of breast cancers could be prevented through healthy behaviors and that some premature cancer deaths could have been avoided by eliminating educational and racial disparities. It is well known that race and ethnicity tend to come between the individual and vital health services. This is confirmed by Zimmerman et al., (2014), who stated that education, economic status, and deficiencies in the health care system are the leading explanations for the various social determinants by geography, and demographic characteristics, such as race and ethnicity.

A high percentage of Black women may not have access to the internet resources with vital information about breast cancer screening and its importance. As suggested by the American Census Bureau (2017) 25 % of Black women in Boston, have internet use. The educational disparities between White and Black women in Boston are very deeply rooted, and there are many psychological and historical factors involved. The educational disparities between Black and White women in Massachusetts stands at 47.4 % and 86.1 % respectively. The fundamental issue is that historically, Black women have been isolated from the mainstream of education. According to Bowman, et al., (2018), past and present economic and social conditions are at the root of the achievement gap. Because of this isolation, the basic education and information about general and common trends in the health care system, including breast cancer screening access, may not be within the reach of Black women. Bowman et al., further stressed that societal efforts to overcome the ill effects of prejudice and discrimination for Black women have not been effective enough, and that there continued to be inequities in almost every aspect of life including education, therefore, Black women are left in the lurch. BRFSS, (2016) asserted that Black women with breast cancer are more likely to be diagnosed at a later stage and have treatment delays than are White women.

Delays arise because African American women do not have much numerical presence or visibility. Apparently, there is no systematic program for access that caused them to be left out of the screening process. Most of the reasons are systemic. Ramachandran et al. (2015) highlighted systemic problems with scheduling care (14%) and timeliness of care as part of the reasons for delay. Black women tend to be beneath the radar of the screening process. In a situation like that, there are perpetual delays in everything from diagnosis to the beginning of treatment. They are given appointments that may or may not be confirmed, spanning over a long period in the mammogram clinic, within the healthcare organization. It is important that healthcare administrators and other hospital leadership be sufficiently groomed in cultural sensitivity to be able to communicate effectively to these patients under their care without condescension, without overtly disparaging indigenous cultural beliefs, but at the same time ensuring that the dangers of such beliefs are brought to the attention of every patient.

It is also vital to ensure that these patients are made part of the decision-making process. If carefully and adequately handled by the hospital administration, these measures will create an environment for a wider sphere of wellness, safety, and recovery without high cost. But above all, administration leadership should actively pursue the implementation of policies that would make it possible for the women to access breast cancer screening effectively. Solutions to this systemic problem should be geared towards inclusiveness of the populations. Powerful cultural competence, understanding, education about breast cancer screening, policy enactment, and patient advocacy would all be necessary to ensure that these delays are abated, and that both the lives of the populations as well as cost are saved.

Theoretical Framework of the Study

For the purposes of this research, I employed a methodology informed by the Health Belief Framework. This is a theoretical framework originally developed by Hochbaum and Kegels (1950). It is a psychological model that attempts to explain and predict patterns of health behavior (Hochbaum & Kegels, 1950). Glanz, Rimer, and Lewis (1997), NCI (2003) identified the Health Belief Model as by far the most commonly used theory in health education and health promotion. The assumption of this framework is that every person is a rational being and that when confronted with a choice of undergoing a procedure, such as screening for cancer, the individual will take an action determined by what he or she thoughtfully considers to be in his or her best interest.

The framework highlights six main constructs that will affect the individual's decision to undergo or not to undergo the procedure in view. These six constructs are :- (a) perceived susceptibility, (b) perceived severity, (c) perceived barrier, (d) perceived benefit, (e) cues to action, and (f) self- efficacy, as highlighted by Hochbaum and Kegels, (1950). (Perceived susceptibility) refers to the individual's understanding of the extent to which she feels susceptible to the disease for which she is to be screened. This often goes with the retort: I don't think I have cancer. Why should I be screening for cancer? Secondly, according to Hochbaum and Kegels, (perceived severity) refers to the individual's sense or feeling of the seriousness of the symptoms that would warrant undergoing any form of test, especially one that could be invasive or in which the person does not feel any pain or any discomfort, that could suggest that she is even remotely sick. The third construct (perceived barrier) refers to impediments, as suggested by Hochbaum and Kegels, that affect the individual's willingness to submit to screening. This could be psychological, physical, or arising from fear of being a victim of experiments such as the infamous Tuskegee syphilis experiment of 1932 by the Public Health Service and the Tuskegee Institute and the prison women's unwanted sterilization and Eugenics programs in U.S Prisons as late as 2010 in California.

Hochbaum and Kegels indicated that the fourth construct (perceived benefits) refers to the individual's conviction or otherwise of the chances of receiving any practical benefit from the screenings in view. Such considerations according to Hochbaum and Kegels may be determined by actual experience of people known to her including relatives, friends, and family or hear say- information from the rumor mills, and such rumor mills tend to have a very strong effect on people's decisions about medical intervention.

The fifth construct (cues to action) as cited by Hochbaum and Kegels refers to reminders through email, phone-calls, diary entries, that are required to make a person take the necessary action when due. The sixth construct (self-efficacy) as indicated by Hochbaum and Kegels, refers to an individual's ability to participate in a specific behavior that is important in successfully changing a life-long behavior. It appeared from the foregoing according to Hochbaum and kegels, that the health belief framework encompassed and helped to eliminate practically all aspects of the problems than an individual confronted with the necessity for cancer screening will need to overcome, for taking a decision to submit to such screening.

Research Questions and Hypotheses

Creswell (2014) suggested that research questions inquire about the relationships among the variables that the investigator seeks to know and that hypotheses are the predictions that the researcher makes about the expected relationships among variables.

This study sought answers to the following research questions:

RQ 1: Is there any correlation between breast cancer screening and access to personal healthcare provider among Black and White women aged 50-74 in Boston, Massachusetts?

H_a 1: There is a correlation between breast cancer screening and access to healthcare provider among Black and White women aged 50-74 in Boston, Massachusetts?

Ho-2: There is no correlation between breast cancer screening and access to personal healthcare provider among Black and White women aged 50-74 in Boston, Massachusetts.

RQ 2: Is there any correlation between breast cancer screening and socioeconomic status among Black and White women aged 50-74 in Boston, Massachusetts?

Ha-2: -There is a correlation between breast cancer screening and socioeconomic status among Black and White women aged 50-74 in Boston, Massachusetts (BRFSS, 2016).

H0-2: There is no correlation between breast cancer screening and socioeconomic status among African American Black and White women aged 50-74 in Boston, Massachusetts.

RQ 3: Is there any correlation between breast cancer screening and education among Black and White women aged 50-74 in Boston, Massachusetts?

Ha-3: There is a correlation between breast cancer screening and educational level among Black and White women aged 50-74 in Boston, Massachusetts.

H0-3: There is no correlation between breast cancer screening and educational level among Black and White women aged 50-74 in Boston, Massachusetts.

Nature of the Study

This is a quantitative cross-sectional descriptive study that examined breast cancer screening among Black and White women in Boston Massachusetts. This researcher chose the quantitative design because a study of this kind is better explained by using numbers to explain the results. As Wagner (2016) emphasized, information about correlation will tell the extent to which variables are related. Burkholder, Cox, and Crawford (2016), suggested that the quantitative focus of this study is the best approach for research on breast cancer screening among the target populations. Secondary data materials were used for the study. The principles of multiple regression were used to analyze the data. This was useful in predicting relationships between the two groups of female populations on which the study focused—Black and White women in the City of Boston, in the Commonwealth of Massachusetts.

Albright and Winston (2015) argued that using a quantitative focus for the study would allow for comparison between the dependent and independent variables of breast cancer screening, socioeconomic, access, and education, to see how they would impact the dependent variables. One should note that this study will either be able to confirm the support for the relationship between cancer screening practices, of Black and White women or not. This researcher utilized SPSS (Version 23) in analyzing and running the multiple regression for the study. Frankfort-Nachmias and Leon-Guerrero (2015) asserted that multiple regression can be used when researchers are investigating how two or more independent variables affect the dependent variables. Using the independent variables of access, health education, socioeconomic status, race and ethnicity in this study, this researcher could understand how they could impact the problem of the study—breast cancer screening access and the impediments

Scope and Delimitations

This study focused on the Black and White population of the United States residing in the city of Boston, Commonwealth of Massachusetts, occupying the following geographical localities, with an overall population of 890, 675 persons

Table 1

Boston Population

Locality	Population
Dorchester Plain	122,598
Roxbury	49.028
Jamaica Plains	38,425
Mattapan	24,042
Mission Hill	16,987
Total	890,675

Note. Adapted from "5 -Year American Community Survey," by U.S. Census Bureau, 2010-2014.

The 34,381 population of the typically Bostonian district of Hyde Park was added to bring the overall predominantly Black White population of Boston to 925,056. Excluded are other typical racial-ethnic groups resident in the metropolitan districts of Boston—among them, Asians (including Arabians, Iranians, Afghans, Pakistanis, Indians, Chinese, Indonesians, Malaysians, and Filipinos) and Pacific Islanders from Hawaii, Guam, Papua New Guinea and so on. Also excluded are the mixed population of people of uncertain origins occupying rented apartments in the central districts of Boston, which are largely populated by government offices and business supermarkets.

The focal populations included American-born individuals whose ancestors migrated from Europe with the 16th century Pilgrims or were transported from Africa as human cargo in slave ships from the 16th to 19th centuries. They also included later-day voluntary migrants of today from both Europe and Africa. Excluded in this study were young adults under the age of 50 years, and women who had mastectomies and were diagnosed with cancer prior to the survey. The study is limited by the sample population of Black and White women, all residing in Boston, Massachusetts.

This researcher used the purposeful sampling method for this research. The use of this method placed a limitation to the generalizability of the study and in addition the participants selected from the (BRFSS) (2016), and the (CDC) means that the study can only be generalizable within the Commonwealth of Massachusetts. Being a self-report survey means that the study has disadvantages of accurate recall of information. The CDC (2012) indicated that advantages such as convenience and participants answering the exact same questions made self-report a reliable source of data collection.

Assumptions, Validity, and Potential Generalizability

A major assumption in the selection of the focal populations was that they are representative of the behavior of residents of most of the diverse races and ethnicities in the Boston Metropolis. The validity or believability of this assumption arise from the fact that there are numerous patterns of commonalties of traditional belief systems across the world, which made it possible to assume that such patterns are carried along by the immigrant groups. Similarly, this researcher assumed that patterns of cultural impediments to modern health care services among various new immigrant groups would, for the most part, be identical to one another. Once verified for several diverse groups, the potential for generalizability asserted itself as valid for the most part in Boston Massachusetts.

Other assumptions related to the study procedures and the sample population on which the study focused. It was assumed that the study procedures were appropriate for the survey, and that participants would inevitably be able to recall necessary information accurately and honestly since they were put together by the CDC and BRFSS (2016), reputable federal research agencies that conduct most surveys needed nationally and by the states. It was also assumed that the sample taken would be representative of the target population to yield reliable outcomes. Furthermore, it was assumed that the number of participants chosen (8415) would be sufficiently representative to yield appropriate results and that the women selected would meet the criteria set up for inclusion in the study.

Definition of Key Terms

Access: - the actual use of personal health services and everything that facilitates or impedes that use. (Anderson, 2012)

BRCA1 and BRCA 2: -BRCA is an abbreviation for breast cancer BRCA1, - and BRCA 2 thus refer to the two known types of genes located in the mammary glands that normally protect us from getting breast cancer (CDC, 2014),- Invitae.com cites that the presence or absence of these genes can be observed by means of comprehensive, high quality genetic testing with robust clinical evidence.

Breast cancer screening: -The checking of a woman’s breasts for the presence of cancer before the signs and symptoms of the disease. (CDC, 2014).

Breast self-examination (BSE) :- This refers to a situation in which a woman checks her own personal breasts for lumps by carefully looking for such lumps (i e, inspection) and gently pressing around and feeling for the lumps (i e palpation):- (ACS, 2015).

Ductal carcinoma in situ (DCIS):- This is a kind of breast cancer that has not spread into nearby breast tissue. It is sometimes called a pre-cancer (cancer.org).

Lobular carcinoma in situ (LCIS :-This refers to cells are growing in the lobules of the milk-producing glands of the breasts and not growing through the walls. It is also called lobular neoplasia.

Low acculturation: -This refers to deficiency or tardiness in process of adopting the cultural traits of social, psychological and cultural change that stems from blending between cultures (Wikipedia.org).

Mammogram: --An X-ray picture of the breast used to look for early signs of breast cancer (CDC, 2014).

MRI: -This is an abbreviation for Magnetic Resonance Imaging of the type described by the CDC (2014) as Breast Magnet Resonance Imaging.

Socioeconomic Status (SES):- Impediment to breast cancer screening among black and White women in Boston Massachusetts. (BRFSS, 2016)

Literature Review

Literature Search Strategy

To complete a search strategy for the research, this researcher made sure that she understood what her topic was all about, especially the research questions, which helped her address those questions effectively. Besides noting all important components of her research topic, defining her research questions was the key to effective search strategy. This researcher conducted a search and a systematic evaluation of the search results, which made the search more productive. Libguides (2019) identified a search strategy as a well thought out approach and plan about how to search for relevant information.

For the purpose of this literature review, this researcher searched various databases, comprising peer -reviewed journals, e-books, PubMed, EBSCO, and ProQuest and these were important because they focused on multiple disciplines in their contents. Additionally, Dissertations, Theses, Eric, Ask Eric, were all searched, as well as Google Scholar and Google search. Essentially, the search strategy consisted of using key terms - and concepts to search the various databases. This researcher also searched for combinations of search term, in addition to reviewing and refining results from the search. The- use of key word synonyms such as *breast cancer screening*, or *mammography*, the use of phrases in the search process such as *breast cancer screening access*, and refining the search by dates needed, for example 2015-2018 was important.

The insertion of the word – *“NOT”*- was used to eliminate aspects of the sentence that were not relevant. An important search strategy enclosed phrases in quotation marks such as “breast cancer screening”, or by removing part of a sentence while leaving the end of it like a sentence that contained mammography access at its end. In this breast, or cancer access may be retrieved. Using Advanced Search Strategy area, key words like *breast cancer screening*, and *access* were placed into separate search boxes in order to retrieve desired results, and these were subjected to changes for productive results. The crucial factor was to emphasize those areas that affect Black and White women’s breast cancer screening and access to facilitate answering the research questions. Furthermore, The Health Services databases of the Walden University Library were also searched.

Furthermore, the CINHAL and Medline search engines were used simultaneously, targeting various concepts and terms relating to breast cancer screening, such as *Black women breast cancer screening, White women breast cancer screening, disparities, implications, guidelines, stereotypes, impediments*, and more. Internet search engines to take a complementary look at cancer screening, and treatment listings in various Black and White popular media were conducted and these yielded useful results. Among these were ethnic, racial, and other cultural media that focused more on popular beliefs and stereotypes about cancer than on medical science, thus offering a window into the cultural impediments that constitute a significant part of the discourse on breast cancer screening access in the present dissertation.

More than 100 relevant articles addressing various aspects of breast cancer screening were found, from which this researcher carefully selected information relevant to the present study. Against this background, the literature review that followed would fall into three segments: (a) General Overview of the Literature on Cancer Screening; (b) Focused Review of the Literature on Breast Cancer Screening, and (c) Barriers to Breast Cancer Screening Access.

General Overview of the Literature on Cancer Screening

As the literature revealed, for many years, various types of cancer have flourished as deadly diseases of unknown etiology as identified by the American Cancer Society (2018). According to Kwok, Ogusiji, and Lee, (2016), in the traditional societies of Africa, Asia, and Latin America, breast cancer is seen as a death sentence that cannot be escaped from, where early detection through screening will make no difference. Ndukwe and colleagues (2013) suggested that in Africa, cancer carries a stigma and therefore is a taboo subject that must be discussed in strict confidence. Morris, (2018) identified advances in technology and precision medicine as moving away from what he sees as one -size -fits -all breast cancer screening. In Europe and North America, mammography remains, according to Shah et al. (2014), the main tool used for breast cancer screening and the detection of cancer. Furthermore, according to Shah et al. (2014) radiation therapy and chemotherapy have been the usual treatment for breast cancer, along with a multidisciplinary treatment approach that has been used in recent times in managing cancer.

Today, mammography or breast cancer screening has evolved into a routine radiological instrument for the preventive diagnosis of women at the risk of breast cancer, regardless of their race or ethnicity (American Academy of Family Physicians, 2017).

Although reserchers have noted the wide availability of modern high-reliability instruments for mammography and breast cancer treatment in large medical cities like Boston, such availability also underlines the problem of the present study. Escobado (2016) indicated that large pockets of the female population of the city are less likely than others to get mammography screening.

According to the American Cancer Society (ACS 2014), the percentage of women aged 40 years and older who had mammogram in the past 2 years stood at 69% of) and 65% of (White), leaving 31% of Black women and 35% of White women unaccounted for as far as preventive cancer screening and treatment goes. Translated into a simple population count, this average of 33% of women in the two groups who have failed to take advantage of the widely available mammography screening facilities in Boston constitutes a considerable proportion of the estimated 673,184 residents of the city in 2017, a fact that is reflected, as ACS (2014) suggested, in the high annual incidence of breast cancer and the fatality from it in the city.

Focused Review of the Literature on Breast Cancer Screening

BRFSS (2016) noted that the cancer burden in the United States and in Massachusetts remains high. This usually meticulous survey revealed that every day nearly 35 of Massachusetts residents die of cancer, representing 36 % of all deaths from the disease, (BRFSS, 2016). Against this background, the (ACS, 2011) estimated that approximately 1,596,670 of new cancer cases would be diagnosed across the United States in 2011, with 571,950 persons dying of the disease nationwide. The comparable statistical picture for Massachusetts alone from the BRFSS (2014-2016) showed 37,470 residents diagnosed with cancer and 12, 910 dying of the disease. In addition to its morbidity and mortality burden, the BRFSS (2013-15), with an acknowledgement of the accuracy of these forecasts, noted how exponentially high the economic costs of the disease have been over the years.

When the statistics for Boston over the same years were added, a picture of the strong grip of cancer on the city vis-a-vis other parts of Massachusetts and the rest of the U.S. becomes even more vivid. According to BRFSS (2016), apart from skin cancer, breast cancer is the most frequently diagnosed cancer among both Black and White women in Boston, and elsewhere in the Commonwealth of Massachusetts. BRFSS (2018) asserts that it also ranked only second to lung cancer as the cause of cancer death among women over the past 10 years. Thus, in (2014), the ACS reported an estimated 40,430 deaths in the United States due to breast cancer. Siegel et al., (2014) estimated that 232, 670 new cases of invasive breast cancer would be diagnosed among women in the United States in the same year.

Pointing to results such as these, Underwood and Kelber (2015) stressed the need for clinicians, health care administrators, and advocates committed to breast cancer detection and control within targeted communities to be more scrupulous in their deployment of available screening technologies to reach down to the most remote corners of every health community, both urban and rural. Patel et al., (2014) suggested that despite reported improvements in the rates of mammography screening among racial and ethnic minorities many factors remain that affect the initiation of this practice among these sub-groups. Patel et al., further indicated that educational interventions should incorporate information obstacles and predictors to screening.

Despite the enforcement of these guidelines over the past decade, the incidence of breast cancer and resultant mortality have either plateaued or continued to rise in Boston and elsewhere across the United States. Accordingly, several professional healthcare organizations have recommended yearly mammography and yearly clinical breast examinations for asymptomatic women with an average risk for developing breast cancer beginning at age 40. The U. S. College of Obstetricians and Gynecologists (USCOG**)** (2018), recommended that women with the history of breast cancer, should talk with their doctors about the benefits and limitations of the Magnetic Resonance Imaging (MRI) screening.

The American College of Radiology (2018), suggested that women who have a known BRCA 1 or BRCA 2 gene mutation, or women who have had radiation to the chest between ages 10-30 should get a mammogram., and MRI annually. In addition, the National Comprehensive Network (2018) advised that women with ductal carcinoma in situ (DCIS), lobular carcinoma in situ (LCIS), or atypical lobular hyperplasia (ALH), and women who have extremely dense breasts when viewed by mammograms, to talk with their doctors regarding the benefits and limitations of adding an MRI to their annual mammograms.

Over the past 10 years, the (ACS) (2017) - and the National Comprehensive Cancer Network (2016)- have both recommended that women with a moderate risk or high risk for developing breast cancer speak with their health care providers about their health history. Smith et al., (2013) added that the women need to communicate with their physicians to determine when they should begin and how often they should obtain breast cancer screening. Underwood and Kelber (2015) and other health care activists have added the wisdom that it is necessary to carefully assess all affected women, for the impact of social structural factors on breast cancer screening, and the need to design initiatives specifically targeted to those women who have received less than optimal or no breast cancer screening. Smith et al, suggested that the problem is that of developing and deploying better communication strategies designed to teach women the insidious nature of breast cancer and other types of cancer, and how any neglect of the early stages can be dangerous when the disease arrives undetected.

Underwood (2015) indicates that the impact of resistance to breast cancer screening has been so debilitating that over the past decade, several social and clinical efforts have been initiated to awaken urban women of all races and ethnicities to the life-saving advantages of mammography, and follow-up procedures but that despite these initiatives, available data revealed that many women do not receive the recommended breast cancer screening. Accordingly, the response to statistics revealing the plateauing and mortality rates of breast cancer, according to Underwood (2015), have explored barriers faced by women relative to breast cancer, adding that cancer screening resistance or barrier was in fact, a top-notch international concern.

Massachusetts is home to one of the 40 NCI Comprehensive Cancer Centers in the United States. The state also houses the Dana-Faber and Harvard Cancer Center, as well as 45 cancer programs accredited by the Commission on Cancer (COC). As BRFSS (2013) noted, that these facilities must meet best practice standards related to the diagnostic, treatment and other clinical rehabilitation support, prevention and early detection services. Thus, BRFSS (2013) stated that 61% of Massachusetts hospitals were accredited by the Commission on Cancer (CoC) as ranking 7th in **US** in top-quality screening services. It is against this background that we must consider the paradoxical plateauing in the incidence and mortality rates of breast cancer in Boston and elsewhere in the Commonwealth. The following segments of this review will focus on the key factors identified in the literature as affecting the willingness of the target population to submit themselves to breast cancer screening.

Barriers to Breast Cancer Screening

To obtain high quality breast cancer screening care in the healthcare system in Boston and elsewhere in the Commonwealth of Massachusetts, Black and White women must first enter into the system. They must have access to care. Breast cancer can be diagnosed at different stages of development, and when diagnosed early enough before metastasis, it stands a good chance to treatment and cure. Shah et al., (2014) stated that the World Health Organization believed that improving breast cancer outcome and survival through early detection was the key to breast cancer screening. The NHDR, (2013) indicated that cancers treated late with extensive spread often have poor prognosis. --Additionally, NHDR (2016), highlighted that mammography remains the most effective method for detecting breast cancer at its early stages, identify malignancies before they can be felt, and before symptoms develop. Lunsford et al, (2018) suggested that physicians, allied health professionals and the community could assist women in getting accurate and timely information, about breast cancer screening and access.

The Center for Disease Control (CDC) (2017), called on healthcare administrators to investigate barriers that could impede the reception of breast cancer screening namely: financial, structural, or personal barriers which include cultural or religious differences, language barriers, not knowing what to do or when to seek care. In the US, breast cancer among Black and White women is the most commonly diagnosed type of cancer. It was important to point out that, breast cancer occurs in Black women at a later stage of the disease compared with White women.

According to the Breast Cancer Incidence and Mortality Records, Massachusetts (2013), White women had 136.3 numbers of breast cancer incidence and 23.4 mortality rates. Accordingly, Black women had 113.2 numbers of breast cancer incidence and 29.7 mortality rates. In 2015, the percentage of women aged 40-74 that had mammograms within the preceding two years stood at 72.3% for Blacks (non-Hispanic) and 68.2% for

Whites (non-Hispanic). The Center for Disease Control and Prevention (CDC) (2016) suggested that an average of 196,370 women are diagnosed with breast cancer each year and more than 40,000 women lose their lives to the disease annually. If numbers of this kind are carefully examined, continued the CDC (2016), it can be seen whether breast cancer is under control because of available access to screening and preventive treatment.

In a situation in which such a scenario presents a case of insufficient access, the onus would be that of the healthcare administrators and other hospital professionals to use every means available to them to reach as many members of the health populations as possible as advised by the CDC (2016). As a follow up, Lunsfield et al., (2018), advised physicians, allied health professionals, and the community to endeavor to help women receive important and timely information about breast cancer screening which they believed would increase their outlook to mammography. This is an impediment, gap recognized by Shang et al., (2015) that requires urgent attention to increase breast cancer screening access.

Five Barriers to Breast Cancer Screening

As identified in the literature, barriers in question are -five in number namely: (a)Barriers to traditional cultural impediments to the acceptance of modern healthcare services; (b) socio-economic status; (c) socio-psychological phobia, (d) health care disparities; (e) and poor cancer screening guidelines health care management.

Barriers to traditional cultural impediments to acceptance of modern healthcare services.

The immigrant health populations come with cultural impediments to the acquisition of healthcare services. Ramathuba et al., (2015) stated that the acquisition of healthcare services in the views of Akhigbe and Akhigbe, differs from culture to culture, and that fatalism may be a prohibiting agent to participation in breast cancer screening, and health promoting attitude. They further believed that cultural values affect health belief practices, and that this may influence the way African women embrace Western health services, especially conditions such as breast cancer screening. Archibong et al., (2017) highlighted the fact that witchcraft beliefs and practices in disease causation is widely believed in Africa. Since adequate healthcare services are not usually available where individuals believe in witchcraft, Archibong et al., (2017) suggested that immigrant women find it difficult to participate appropriately in a doctor-patient relationship, that which could result in breast cancer screening recommendation. Archibong et al., (2017) noted that belief in witchcraft, deeply rooted in individuals' consciousness will take a concerted effort to be dislodged.

Other traditional beliefs carried over by new African immigrants are those which Ramjee and Daniels (2013) indicated that women and children in parts of South Africa are being sexually violated by men who believe that sex with a virgin will cure HIV-AIDS. Such superstitions have the effect according to Ranjee and Daniels (2013), of driving away these new immigrants from connecting with their healthcare givers about possible breast cancer screening. Gentry, et al., (2015) recognized the challenge faced by leaders, and suggested that leaders in healthcare institutions should try to mobilize the populations, sharpen their instrument of leadership, and focus on their goals towards engaging these women for breast cancer screening.

Barriers arising from socioeconomic status.

Poverty is also an impediment to their subscription to usually expensive health care insurance system before and even after the Affordable Care Act (ACA, Obamacare) 2010 which is now left fragmented by the Republican Party. The crises of ignorance in the community is thus related to the endemic presence of certain diseases such as diseases related to obesity, hypertension, diabetes and its host of complications. These diseases particularly are common in the inner city, especially among new immigrant populations and many of whom come with the belief that obesity is a virtue- evidence of good living. Immigrants from Africa believe that women need to be buxom to be able to deliver babies freely without harming the babies on the path- way.

Amnesty International (2016) indicated that gender inequality is a cause of maternal deaths, often resulting in barriers to essential health services and information. Poverty forces inner city dwelling natives surrounded by fast food restaurants like McDonalds, Burger King, eating pounds of carbohydrate fast foods embedded in trans-fat oils and washed down with coke, pepsi -soda and other equally sugar laden sodas. This is their staple diet that makes the inner city a dangerous zone for human habitation. Then obesity becomes their serious problem. World Health Organization (WHO), (2018) defined obesity as a Body Mass index (BMI) greater than or equal to 30 for adults.

It is hoped that this study will be a major contribution to health care policy reform by presenting an expose of the various reasons why access to breast cancer screening should occupy an important niche in future health care training curricula, be it for doctors, nurses or other professionals. Such curricula are at present shy of such provisions and the consequence is that most professionals tend to marginalize the problem. The literature suggested that there is a major gap in sensitivity of health care professionals to the problems of new immigrants from everywhere in becoming part of the culture of wellness in United States. Betancourt et al, (2013), suggested that a culturally competent healthcare system should embrace and incorporate the culture of the individuals.

They should assess the cultural relations, recognize the dynamics emerging from the cultural differences, and adapt such differences to meet the patients' healthcare needs. Dauvrin, and Lorant (2015) highlighted the fact that, healthcare professionals, should consider how their leadership affects cultural strategies developed and implemented in healthcare services. Health care policy makers, providers, insurers, and educators noted that cultural competence is a strategy to eliminate racial and ethnic disparities. A huge part of the problem is the absence of systematic training of American health care professionals in cultural sensitivity, which means that these beliefs that constitute impediments to the reception or acceptance of modern health care services, such as breast cancer screening, are held to be true by those new immigrants that come with them.

Such education should be a process of accelerated acculturation, which Neves et al., (2013) cited as an expected result of the migratory process strongly related to health. The training required includes the development of a better diplomatic and non-condescending language to communicate to these immigrants, the facts of science in modern health care in contra distinction to the irrationality of their folk belief. This study is a survey of the attitudes to and impact of breast cancer screening of Black and White women in the Commonwealth of Massachusetts. By Whites we mean American citizens born in Massachusetts and those with European ancestry living in the Commonwealth of Massachusetts.

Barriers arising from socio-psychological phobia.

Another major barrier to screening identified by the literature may be described as medical technology phobia or the fear of free modern medical technology. At the background of this phobia are several of the horrors of slavery in North America and of the institutionalized racism that subsisted after the post-civil war emancipation proclamation. The cruelties of Whites against Blacks under various subterfuges have continued to haunt the memories of many black people in America till today. One of the most frequently told tales pertains to the so-called Tuskegee experiment of 1932-1972. The Tuskegee Study of Untreated Syphilis in the Negro Male, also known as the Tuskegee Syphilis Study or Tuskegee Syphilis Experiment was an infamous clinical study conducted by the U.S. Public Health Service.

According to the U.S. Public Health Service (PHS) (1932-1972), the purpose of this study was to observe the natural progression of untreated syphilis in rural African American men in Alabama under the guise of receiving free health care from the United States government. Deceived with irreversible and unapologetic cruelty of the experiment, several of the participants died of syphilis or lived with it in painful penury to the end of lives. Reeves, (2017) stated that the last man involved in the syphilis study died in 2004.

The story of a traumatic event such as the Tuskegee experiment is apt to occupy dark and darkening spaces in the collective unconscious of those to whom it is told from childhood, and so indeed did the story flourish, digging deep roots into the psyche of most Blacks. Today, since its unraveling in 1972, it has become one of the centerpieces of Black American folklore passed down from generation to generation. It has also become a major deterrent for submitting to cancer-screening procedures—following all the four constructs—(a) perceived susceptibility. (b) perceived severity. (c) perceived barrier, and (d) perceived benefit—of the health belief theoretical model of Hochbaum and Kegels (1950), out of the fear that it may well be another Tuskegee-like experiment designed to deceive some blacks into ruining their lives by hankering for free or cheap health care procedure from a deceptive public service.

The first construct of the theory—Amenability—is particularly tied up with this barrier to breast and other cancer screening. It comes with the question: Why should any rational person, confronted with a choice of undergoing a medical procedure such as screening for cancer, not remember the dreadful Tuskegee experiments and several other similar deceptive experiments with similar eugenic consequences and thoughtfully consider such screening not to be in her best interest.

Barriers arising from health disparities.

Significantly, according to ACS (2014), the overall incidence of new cases of breast cancer in the United States is slightly lower among Black women than among White women. This statistical profile is reflected in the cancer profile of the City of Boston.

However, breast cancer mortality is higher among Black women than White women. (ACS, 2014). Howland et al., (2019) noted that even after accounting for differences in income, past screening rates and access to care Black women are diagnosed with more advanced breast cancers and have worse survival than White women. Added to these is the fact that Black women tend in general to be diagnosed at a younger age than White women (ACS, 2014).

The existence of disparities in cancer incidence and mortality as well as in survival by race/ethnicity and socioeconomic status has been well-established by research. Similarly, Gerend and Pai, (2019) stated that factors responsible for racial disparities in mortality from breast cancer, are poorer outcomes in Black women, which reflects the fact that breast cancer tends to be a more biologically aggressive disease in Black women than in their White counterparts. These disparities, continued Gerend and Pai, also reflect social, economic, and cultural barriers that disproportionately affect

Black women. A survey by the American Cancer Society (ACS, 2015) revealed that the ending of educational and racial disparities can effectively result in the preempting of one-third of premature cancer deaths among members of the lower levels of the socioeconomic strata.

Barriers arising from poor cancer screening guidelines and management. Guidelines for cancer screening have changed within the past few years because population interventions did not show that earlier screening guidelines reduced mortality rates. Consequently, the U.S Preventive Task Force (USPSTF) (2018), has been mandated to change its screening guidelines for some cancers, especially breast cancer. Kaiser Permanent (2017) indicated that the recommendations contained in the guidelines may not be appropriate to be followed by women for mammography. While the US Preventive Services Task Force (2016) suggested that a decision for women to start mammograms should be a personal thing, at age 40 or 50, the American Cancer Society (2016) passes the responsibility to women to start mammography at age 40, based on their consideration of the benefits and risks.

The International Agency for Research (IAFR) (2015) highlighted the fact that insufficient evidence exits about recommendation for or against screening at age 40 but supports screening at age 50 and above. The American College of Obstetricians and Gynecologists (ACOG) (2017) emphasized that women should engage in shared decision making with their providers for everything concerning their mammography. This confusing and inconsistent guidelines from authorities impeded breast cancer screening among women.

Summary and Conclusion

In this section, the problem of access to breast cancer screening and impediments among Black and White women in Boston, Massachusetts, has been examined as a potential contribution to the discipline of preventive health care administration. Among the barriers to breast cancer screening identified through the literature reviewed are — traditional impediments to the acceptance of modern healthcare procedures, socioeconomic status, socio psychological phobia, and access to healthcare services, educational level and health disparities. This study was designed to bring to light a major problem that needs to be better understood and tackled from a wide range of social and psychological perspectives which are summed up in the statement of the significance of the dissertation as opening the door to social and preventive medicine, public policy and social change. Section two offers a research design considered to be most appropriate for the analysis and interpretation of the related secondary data accumulated in this study.

Implications for Social Change

Walden University (2015) identified social change as the improvement of human and social conditions. Social change is thus the organizing principle of research at Walden University. It is the radical transformation of attitudes and perceptions, that bid fare to contribute to the understanding of various components of individuals in this case- Black and White women, taking care of themselves as well as other women. At the core of these transformations are acculturation processes, which are important in the receptivity of screenings which can be mistakenly avoided either as taboo out of ignorance or fear including the fear of euthanasia and other dangerous experiments. So, breast cancer screening will be quite an effective positive social change vehicle, because it will from the perspective of Walden University (2015), educate, promote individuals, communities, organizations, institutions, culture and society.

Section 2: Research Design and Data Collection

Introduction

The purpose of the present study was to employ secondary data from the - (CDC) and the BRFSS (2016) Massachusetts, to examine the problem of the existence of significant pockets of resistance and barriers to breast cancer screening among Black and White women in Boston, Massachusetts, despite the existence of a large number of state-of-the-art, high-reliability facilities for cancer screening and treatment in the metropolis. The method of analysis was quantitative. In this section, this researcher surveyed and discussed the main parameters of the quantitative research design employed. The first segment focused on the nature and rationale of the design, whereas the second segment focused on details of the methodology required, to ensure the empirical consistency of the analysis, and the amenability of the outcomes, to replication by other scholars.

Research Design and Rationale

The quantitative, cross-sectional correlation research design was deemed most appropriate for this study, for its usefulness, in examining independent variables, in the present case, the socioeconomic status, access to healthcare services, and educational level of the target population. In addition, this researcher examined the covariate variables—age, gender, ethnicity and health disparities of the participant human subjects—to see how they impact the target populations in the study. Because the primary materials for the study were secondary data already collected, sorted, and validated by the

CDC and BRFSS (2016), the task of fieldwork was eliminated, allowing for a close focus on the data themselves. A central analytical feature of the study was comparative.

By placing the data belonging to the two streams of the target population- Black and White women, side by side, this researcher was attempting to observe closely any differences between them, and to note the social and other significances of such differences vis-à-vis the similarities in their socio- economic status, access to breast cancer screening services, insurance coverage, and levels of education. No permission was needed to obtain the dataset as data are public domain, and this researcher was able to collect them. A permission letter was therefore not required by the IRB.

In general, the research design is consistent with well-established sciences of human subject quantitative methodology. The data analysis tools used to analyze and answer the research questions were the chi square and the Statistical Analysis System. The main variables are breast cancer screening, access to care socioeconomic status, and educational level, while all the other variables are covariates. The univariate descriptive percentages constituted the main analytical tool. Thus, the dependent variable breast cancer screening, and the independent variables socioeconomic status, access to breast cancer screening services, and educational level, were compared among the target populations. In this study, there was no time constraint. This is a cross-sectional study, which compared two different population groups of women, at a single point in time, as opposed to a longitudinal study, which spans across sequences of events.

The choice of this quantitative research design arose from the fact that such designs possessed features that made them most amenable to advancing knowledge in the discipline of health care administration and management. Such features included demographic as well as statistical complexity and stability.

Methodology

As stated above, the dependent variable explored in this study was breast cancer screening, and the independent variables were access to health care, socioeconomic status and educational level. The covariate moderating variables were age, gender disparities, and ethnicity. Similarly, the research design for the study was quantitative cross-sectional study whose major aim was to investigate breast cancer screening among Black and White women, in Boston Massachusetts.

This design was connected to the research questions through determining how access to care, socioeconomic status, and educational level can either facilitate or impede breast cancer screening, among the target population of African American and Caucasian women in Boston. Through this quantitative design, this researcher sought to identify differences, to see if there were any, between the two groups within the target population. With regards to the design choice, the search for appropriate secondary dataset materials suitable for research in this discipline, was very time consuming. No written permission to obtain and utilize the dataset approval was necessary from CDC and BRFSS (2016) Massachusetts since data are public domain.

Population and Sampling Methods

The target population comprised Black and White women, all residing in Boston, Massachusetts. The total number of female participants surveyed for interviews by BRFSS Massachusetts, and the CDC who self-reported was 8415 individuals aged, 18 years and above, among whom 3962 participants were interviewed by landline and 4453 by cell phones. Adults aged 50 to 74 years old African American and Caucasian women from Boston, Massachusetts were also among the participants surveyed. The age groups above 74 years were excluded by BRFSS researchers, because although they are required to undergo annual mammograms, they are no longer at this point required to be subjected to undergo the painful routine of mammography, on account of their ageing problems.

The selected age range for the population for this study is 50 to 74 years. None of the participants has ever been diagnosed with cancer. None has ever had mastectomies prior to the study. This study excluded young adults under 40 years of age. This 40 -year old category population is suspicious of all government’s projects, which they saw as potentially harmful to black people. This suspicion arose from memories of the Tuskegee Experiments, in which African American women were infected with syphilis. One of the most important outcomes of this research, was the principle that no human subject, could be used for any experiment, without being told what the experiment was about, and what the expected outcome would be.

Furthermore, memories and fears of the sterilization of African American women without their consent in prisons, mainly in the Southern states, linger among the younger adults till today. The younger adult women are still riled by memories of the harmful eugenic experiments perpetrated against their grandparents, which prevented them from having children. This researcher also excluded these young adult women from the study, because any danger of cancer infection they face, could emanate from their having multiple sexual partners, in which case, such cases that develop may not be natural. The target population comprised Black and White women all resident in Boston in the Commonwealth of Massachusetts.

These data were carefully selected by the CDC and BRFSS (2016) to be representative and to yield accurate results. All data were also weighted so that all the participants had the probability of being selected. Percentages were age-adjusted to BRFSS female participants aged forty years and above. To gain access to the dataset, this researcher typed in Mass. org into the google search engine and from there located the dataset BRFSS (2016) appropriate for her study.

Sampling Strategy

The sampling strategy employed in this study, as indicated by the CDC and BRFSS (2016), was simple purposeful sampling. The rationale was to ensure that only women who have never reported the presence of cancer or those who have never had mastectomies were included. As Frankfort-Nachmias and Leon- Guerrero (2015), suggested purposive sampling, an extension of convenience sampling, was commonly used when researchers felt confident that the data collected would represent the study population.

Sampling Frame

The sampling frame consisted of adults who were surveyed, ages 18 years and older (BRFSS, 2016). Among the participants surveyed were adult women Black and White aged, between 50-74 years of age all of whom are resident in the localities of the city of Boston, Massachusetts. Age groups above 74 were excluded because, although they are required to do annual mammogram, but they are no longer required to be subjected to undergo a painful routine mammography tests due to ageism. Women who have a serious health problem may not benefit enough from having breast cancer screening as well, due to ageism, according to Komen, (2017). Excluded also were women with mastectomies who were diagnosed with cancer prior to the survey. Komen, continued, stating that mammography is the most effective screening tool used to find breast cancer.

Recruitment, Participation and Data Collection

This study consisted of the use of secondary datasets provided by the CDC and BRFSS (2016) from Boston Massachusetts. The BRFSS (2016) data obtained for the purpose of this study were weighted to ensure that participants are adult population. The weighting guarantees that the sample is representative, making it possible to eliminate bias from participants who failed to respond to the survey. Participants who were surveyed were only those who had landlines telephone numbers in their households and cell phones. Additionally, BRFSS (2016) administered more added Massachusetts questions to make the survey more specific and representative among Massachusetts population. The data collected were cross-sectional. The categories of participants in race and ethnicity- included in the data collection were Whites (non-Hispanic) and Blacks (non- Hispanic)

Power Analysis, Sample Size and G* Power

According to Htway, (2015), power analysis provides statistical power in multiple regressions. With power analysis, this researcher could have the information needed to accurately address the research questions, as well as the number of subjects needed for the study. This researcher utilized G*Power 3.0.10 by Htway (2015), apriority to determine a sample size of 62, an effect size of .5, and an alpha level of 0.05, a large effect size. The power level was 0.95. The alpha level is the significance level, with standard accepted level as 0.05. This was used to measure the p-value of our test to declare it is significant. The effect size of .5 is moderate and greater than .5 is strong according to Heale and Twycross (2015). The correlation of 0.3 signifies a weak correlation in the study. All these portray areas of weakness and strength in correlation. The power level was 0.95, The higher the power level, the smaller the sample size. This meant, according to Heale and Twycross (2015), that we have a 95% confidence level that our analysis is correct.

Instrumentation and Operationalization of Constructs

The developers of the instruments used for the study are the Centers for Disease Control and Prevention, (CDC) and Behavioral BRFSS (2016). These tools have been tested by the CDC and BRFSS, both of which are reputable public research agencies.

They have therefore been deemed appropriate to be utilized for the study. The CDC and BRFSS (2016) Massachusetts published the secondary datasets as appropriate for any study, and that established the reliability of the instruments used. Various researchers across the world have access to the instruments and can utilize the data sets for various categories of populations in their studies.

Being secondary datasets, as opposed to primary datasets, the instruments had undergone scrutiny to establish their validity and reliability. The CDC and BRFSS (2016) analyzes data from the Behavioral Risk Surveillance System. They are the largest, and continuously conduct telephone health survey, on national and state -based health issues. The survey is randomly performed on civilian non-institutionalized adult population. The BRFSS (2016) data have been invaluable and vastly utilized by researchers all over the world in building up literature reviews for their studies.

Predictive and Construct Validity and Instrumentation

The quantitative analysis of secondary data from the CDC and BRFSS (2016) survey was used to determine the extent of breast cancer screening utilization, among the two categories of the target population of women, Black and White, in Boston, Massachusetts. In order to determine the validity and reliability of the analysis, this researcher employed the Chi square analytical statistical tools which portrayed the goodness of fit and indicated the relationship among the variables. To provide evidence for reliability—internal consistency and test and retest, the chi Square statistics test was performed using SPSS version 23, student version. The chi square test exhibited the relationship among the variables, breast cancer screening, access, socioeconomic status, and education of the target populations.

Results Interpretation

This study utilized univariate and descriptive statistics tools to compare the demographic elements of the population samples, comprising access, breast cancer screening, socioeconomic status, and education. The chi square analysis, and correlation tests were used to generate a statistical result which indicated whether there was significance or not with the variables according to Laureate Education, (2016). The correlation test provides us with the strength of the relationship between the variables. All these were addressing the research questions.

Validity

This part of the study dealing with validity sought to minimize or eradicate possible limitations that could negatively impact the study results. This could result from the use of secondary data sets from BRFSS, (2016), a national and comprehensive data sets, utilized by researchers. Using such data sets could produce limitations in the study through the questionnaires that contain non-institutionalized individuals, 18 years and above. BRFSS data collection is self-reporting. Subjects can have the problems of recalling information, and self -reported data which potentially carry biases. These could constitute limitations to the study validity.

Predictive, Construct Validity, and Reliability

Heale and Twycross (2015) stated that predictive validity means that the instrument should have high correlations with future criterions, which measured how variables can predict outcomes based on information from other variables. It is the extent to which an assessment accurately measures what it is intended to measure. Construct validity according to Heale and Twycross (2015), referred to whether one can draw inferences about the results of a test. It is one of the measures that can be used to validate a test. Mohamad et al, (2015) identified reliability as the scores of an instrument that are stable and consistent.

Threats to Validity.

Frankfort-Nachmias and Leon- Guerrero (2015), suggested that both extrinsic and intrinsic factors are known potential threats to validity in research. The focus of this part of the study was to decrease possible limitations and address any limitation that might arise from the use of secondary dataset from BRFSS (2016). For the survey, BRFSS (2016) interviewed only non-institutionalized participants 18 years and older. BRFSS's data collection was subject to self-reporting, recall and non -response bias. This predisposes the design to lose validity. In addition, the probability is that vital information could be missed. These are all important components that could alter the results of external validity.

External validity: External validity deals with how the design allows assumptions to be generalized outside the limitations of the study. The results of this study will only be generalizable within the state of Massachusetts. External validity addressed the limitations of using secondary data sets for the study. Any factor that affected the generalizability of the results of this study, was a threat to the study validity.

Internal validity: Whenever we use the BRFSS datasets for studies, problems of internal validity do present. One such problem may be the choice of wrong dataset according to Schlemmer and Capp (2014). Threat to internal validity makes it difficult for us to state that relationship exists between our independent and dependent variables. For this study, all participants in the survey dataset by BRFSS (2016) were selected by random sampling. There was no issue of participant drop out to affect internal validity. The correct dataset was used for the study. Schlomer and Copp, (2014) spotlighted the seven types of variables which could affect internal validity, namely: history, maturation, testing instrumentation, statistical regression, experimental mortality and selection maturation interaction. This study was not affected by any of the problems of these variables. This researcher performed the chi -square statistics test to find the reliability and validity of the data in SPSS (Version 23). The chi -square test portrayed the relationship of the variables, the strength of the relationship.

Data Analysis Procedure

All data analyses were conducted using the Statistics Software, SPSS version 23. This researcher summarized the variables by utilizing a single score identified in table 2 below. A binary dependent univariate and descriptive statistics comprising population number, percentages and confidence interval were used for correlation analysis. Any missing variable value were recorded as valid and observed closely but the values were excluded at the final analysis. All the values were recoded applying implications method such as 1, 2, and 3 and so on as indicated below.

Table 2 **Operational Definitions of Variables**

Name	**Type of Measurement**	**Definitions**	**Variable**
Socioeconomic Index- Independent	Nominal	Household income	1=<$25,000 2=$2500-34,999 3=$35,000-49,999 4 =$50,000-74,999 5=$75,000 or >
Access to healthcare	Nominal	Ability to access care	1= Have personal healthcare provider 2= Could not see doctor due to cost 3= Had routine check in past year
Education	Nominal	Education Level	1=< High School 2= High School 3= College 1-3 years

			4= College 4+ years
Brest cancer Screening (dependent)	Binary	Adults	1= White 2= Black

Operationalization of Variables

A look at the Table 2 would show the nominal, and binary variables that were employed in the analysis. These variables consisted of essentially breast cancer screening, access to breast cancer screening, socioeconomic status and education. Of special interest here is the binary variables referring specifically to the Black (non-Hispanic) and Whites (non-Hispanic) women with regards to the Behavioral Risk Factor Surveillance System (BRFSS) (2016) of Boston Massachusetts. All variables were recoded using the Statistical Package for the Social Sciences, (SPSS) student version 23 program instrument.

Data Analysis Plan

This researcher utilized chi square test, correlation and descriptive statistics in performing all data analyses in SPSS version 23 student program. The data were downloaded from the BRFSS (2016) website as a Statistical Analysis System transport file which included only women in Massachusetts 50-74 years old. The chi square test would tell the relationship among variables if any. As Nelson and Nelson, (2016) indicated, the chi square independence test is a procedure for testing if two categorical variables are related in some populations. The chi square regression test was used to estimate the relationship between the variables – breast cancer screening among Black and White women, access to care, socio- economic status and education. These addressed the Research Questions, 1, 2, and 3 regarding correlations.

Data Cleaning

Data cleaning essentially comprised the detection, diagnosis and editing of the data. This researcher utilized the CDC and BRFSS (2016) related to breast cancer screening among African American and Caucasian women, to recode all variables using the Statistical Package for Social Sciences (SPSS) version 23 student program. The variables were then organized into a chart and analyzed by performing a multiple regression with SPSS version 23 student program.

Research Questions and Hypotheses

Creswell (2009) suggested that research questions inquired about the relationships among the variables that the investigator seeks to know, and that hypotheses are the predictions that the researcher makes about the expected relationships among variables. The present study sought answers to the following research questions (RQs):

RQ1: Is there any correlation between breast cancer screening and access to a personal healthcare provider among Black and White women aged 50-74 in Massachusetts?

Ha1**:** There is correlation between breast cancer screening and access to personal healthcare provider among Black and White women aged 50-74 in Massachusetts.

H0 2: There is no correlation between breast cancer screening and access to personal healthcare provider among Black and White women in Boston Massachusetts.

RQ 2: Is there any correlation between breast cancer screening and socioeconomic status among Black and White women aged 50 -74 in Massachusetts?

Ha 2: There is correlation between breast cancer screening and socioeconomic status among Black and White women aged 50-74 in Massachusetts.

H0 2: There is no correlation between breast cancer screening and socioeconomic status among Black and White women aged 50-74 in Massachusetts.

RQ 3: Is there any correlation between breast cancer screening and education among Black and White women, aged 50-74 in Massachusetts?

Ha 3: There is correlation between breast cancer screening and educational level among Black and White women, aged 50-74 in Massachusetts.

H0 3: There is no correlation between breast cancer screening and educational level among Black and White women, aged 50-74 in Massachusetts.

Ethical Procedures:

Following the protocol of Walden University, an official letter is required from the (BRFSS, 2016) Massachusetts, following an official request to use secondary dataset for research in breast cancer screening study. The official letter was deemed unnecessary by the Institutional Review Board, (IRB) Walden Protocol Team. As the protocol requires, Walden Institutional Review Board (IRB) would review the Dissertation and give approval to conduct research on breast cancer screening using the secondary dataset and they did. My Approval number was 09-13-19 0641-042. CDC collected and analyzed the secondary data from the Behavioral Risk Factor Surveillance System (BRFSS) (2016). These were telephone- based random survey of non- institutionalized adult population 18 years and above, and which continuously gathered from 50 states of the nation by BRFSS.

Every year, more related mammography questions are added to the survey. Participants who responded positively also had to respond to how long it had been since their last mammogram. Participants who missed the survey, or failed to respond at all, or responded that they could not answer the questions, were removed from the analyses. Altogether a total number of 8415 participants were included in the survey. There was no ethical conflict for this researcher using the National secondary dataset comprising all the states, of which Massachusetts, the location of my research is based. All ethical issues had been appropriately addressed by the BRFSS, (2016) to ensure the protection and confidentiality of participants. All information regarding the study is securely held in this researcher’s personal protected computer, with a password, and backed up with Seagate. This researcher will retain the records for at least 5 - 7 years after her study before discarding them.

Dissemination of Findings

The results of this study are geared towards being richly meaningful and very useful. The results will be published in prestigious peer reviewed journals within the discipline and disseminated across various libraries and universities nationally and internationally for references by researchers and scholars. It should also be circulated to women’s organizations as an important tool for social mobilization and empowerment. This will also alert women about the significance of early breast cancer screening.

In addition, the results of this study are designed to be primarily useful in reorienting the work of medical administrators in reaching out more thoroughly to the grassroots with their services. The pockets of resistance or barriers to breast cancer screening exists on account of inadequacies of the outreach method adopted by healthcare leadership, nurses, administrators, and others. It is on account of this that we saw high rates of breast cancer mortality. Special efforts will be made to pass the outcome down to practicing healthcare administrators in Metropolitan environments like Boston, Massachusetts.

Finally, it is important to recognize the fact that social change of the kind envisaged in the outcome of the present investigation is very much in line with practical social change advocated by Walden University, namely the radical transformation of the personal, and collective worldviews of individuals and groups, in such a way as to put aside the strictures of age-old folk beliefs and customs, and to live by the dictates of modernity and present day realities such as modern, high-technological healthcare delivery.

Summary and Conclusion

In this section, the main parameters of the quantitative research design employed in the data collection and analysis for the present dissertation have been surveyed and discussed. From the first segment that focused on the nature and rationale of the design, through other segments that focused on details of the methodology, the requirement was to ensure the empirical consistency of the analysis. Maintaining the amenability of the outcomes to replication by other scholars, the section provided a solid foundation on which the delicate statistical edifice, of the dissertation could be confidently laid. It was from this foundation that the findings and results presentation in Section III was expected to flow.

Section 3: Presentation of the Results and Findings

Introduction

The purpose of this quantitative cross-sectional study was to examine breast cancer screening access to mammography services, of Black and White women, aged 50-74 in Boston, Massachusetts. The study also evaluated whether correlation exits between breast cancer screening access, and healthcare providers for the target populations, whether Black and White women could or could not see their doctors due to socioeconomic status and education, and whether they have had mammography within the past 2 years.

The (BRFSS, 2016), indicated that 86-% of women aged 50-74 in Boston, Massachusetts, had had a mammogram in the past 2 years. More specifically, 85 % of White women (non-Hispanic) and 83-% of Black women (non-Hispanic), aged 50-74, in Boston Massachusetts, reported that they had mammogram in the past 2 years Also, whereas 92-% of White women had a healthcare provider they could see as needed, 88-% of Black women could not see the doctor due to cost.

In this study, the researcher examined the independent variables of socioeconomic status, access to mammography, and education level and the dependent variable breast cancer screening of the target populations. Section 3 of this study comprised the results of the analysis of the statistics, generated from the univariate and descriptive statistics, from the demographic elements of the population sample. These were collected from the BRFSS, (2016) Boston, Massachusetts. Laureate Education (2016) suggested that the chi square analysis and correlation tests indicated whether there was significance or not with the variables. The correlation test provided the strength of the relationship between the variables, addressing the Research Questions 1, 2, and 3 in the study.

Descriptive Demographics of the Sample Populations in Boston, Massachusetts.

The BRFSS (2016) Massachusetts surveyed Black and White **-** non- Hispanic women in Boston, Massachusetts, from both landlines and cell phones, totaling 8415 adult women between ages 18 and 74 years old. Overall 3.8% adults ages 18-64 stated that they had no health insurance. BRFSS (2016) suggested that there has been an average 2.5% per year decrease in those who reported not having health insurance since 2012. All female respondents were asked about breast cancer screening. Those women who reported that they have ever had a mammogram were asked how long it had been since their last mammogram. The percentage of women aged 50 to 74, in Boston, Massachusetts, who acknowledged having had a mammogram in the past 2 years are as shown in the Table 3.

Table 3 Mammogram in the Past 2 years.

Overall	N	%	95% Confidence interval
Age Group	2,005	86.3	84.1–88.5
50-59	728	85.7	82.1–89.3

60-69	941	86.6	83.5–89.7
70-74	336	87.2	81.7–92.6

Breast Cancer Screening Among Massachusetts Women: Ages 50 -74 BRFSS (2016)

Table 4 Race /Ethnicity

Table 4 Race/Ethnicity	1680	85.4	82.9–87.9
Table 4 Race/Ethnicity	110	83.4	72.7-94.2
Table 4 Race/Ethnicity	N	%	Confidence Interval

Table 5 Education

<High School	126	82.3	71.7-92.9
High School	421	82.5	77.4-87.6

College 1-3 Yrs.	476	88.1	84.2-92.0
College 4 Yrs.	979	88.4	85.9-90.8

Table 6 Household Income

Household Income	N	%	Confidence Interval
<$25,000	253	85.3	78.1-92.5
$25,000-34,999	148	82.2	73.5-91.0
$35,000-49,999	199	82.0	74.9-89.1
$50,000-74,999	246	83.5	75.2-91.8
$75,000+	655	89.5	86.6-92.4

A Brief Analysis of Data on Race and Ethnicity

A critical look at the statistical demographic data on race and ethnicity highlighted the categories of White and Black women in Boston, Massachusetts, who had access to breast cancer screening in the past 2 years as indicated by BRFSS (2016). The number of White women (non-Hispanic) who screened for breast cancer in the past 2 years was 1680 (85.4%), as opposed to Black (non- Hispanic) women whose number was only 110 (83.4%).

The number of White women (non-Hispanic) who had a personal health care provider was n = 6658 whereas for Black women, (non-Hispanic) n = 461 reported having a personal healthcare provider. Ninety two percent of White women had healthcare provider whom they could see as needed, whereas (88-%) of Black women could not see the doctor due to cost. Therefore, we saw unequal distribution of breast cancer screening due to cost as indicated by the BRFSS, 2016.

For White women (non-Hispanic), the percentage who had had routine check- up in the past year was 80 % whereas for Black women it was 82-%. This could be because Black women were scheduled more for follow- up because they had more possibility of developing cancer because of the cost to screen. For health insurance, according to BRFSS (2016), 3-% of White women had no health insurance, whereas for Black women, there was no documentation in percentage due to insufficient data. Insufficient data for African American women confirmed the fact that lack of access and various other impediments deter them from having regular mammography.

All the respondents were asked if they had any form of insurance coverage during the survey. Respondents who said that they had no coverage whatsoever, had a follow -up question to make sure that they were aware of other health care coverages. Among those other coverages according to BRFSS (2016) are from their employers, Medicare, Mass health, Commonwealth care and coverage through the military. This researcher provided a brief description according to the BRFSS (2016) Boston, Massachusetts, from the dataset sample demographic statistics of breast cancer screening among Black and White women in Boston, Massachusetts.

Table 7.

Operational Definition of Variables.

Name	Type of measurement	Definition	Variable Value
Age Group	Nominal	Years of Life	
50-59			1.
60-69			2.
70-74			3.
Race/ethnicity	Nominal	Reported race and ethnicity	
White			1.
Black			2.

Health Care	Nominal	Access to care	
Have personal healthcare provider			1.
Could not see doctor due to cost			2.
Had routine check in past year			3.

Socioeconomic	Nominal	Household income	
Index			1.
<$25,000			2.
$25,000-34,999			3.
$35,000-49,999			4.
$50,000-74,999			5.
$75,000 or >			
Education	Nominal	Education Level	
< High School			
High School			2.
College 1-3 years			3.
College 4+ years			4.
Breast Cancer	Binary		
White			1.
Black			2.

Data Collection Time Frame

The Behavioral Risk Factor Surveillance System (BRFSS, 2016) runs as a continuous survey of adults 18 years and older and is conducted in all 50 states of the nation, in a collaborative manner, between the Federal Centers for Disease Control (CDC) and Prevention, and the State of Massachusetts. The BRFSS collects data on various health issues annually, including breast cancer screening survey. BRFSS (2016) stated that this helps to identify areas of need for health interventions and preventive programs.

Research Question 1: Is there any correlation between breast cancer screening and access to personal healthcare provider among African American Black and White women, aged 50-74, in Boston, Massachusetts?

Table 8

Black women Ages 50-74:

	Have personal healthcare provider:	Do not have personal healthcare provider
Mammogram in the past 2 years	43326	105
No Mammogram in the past 2 years	7954	33

*All Ns are weighted frequency	51280	138

	Black Women Ages 50-74:
Mammogram in the past 2 years: Have personal healthcare provider 84.5%	Do not have personal healthcare provider 76.1%
No Mammogram in the past 2 years 15.5% 100%	No mammogram in past 2 years 23.9% 100%
Rao- Scott Chi Square Test of Significance:	Rao Scott Chi Square 0.14 p-value 0.71

*All percentages are weighted proportions
Weighted percentages converted to
percentage of total.

Interpretation: Among (unweighted sample size = 100), Black women in Boston, Massachusetts who provided information about whether they had a personal healthcare provider or not, and whether they had had a mammogram in the last 2 years or not, 85% of Black women who had a personal healthcare provider had a mammogram in the past 2 years, while 76% of Black women who did not have a personal healthcare provider had had a mammogram in the past 2 years. This difference was found to be statistically insignificant (*p*-0.71) using the Rao-Scott chi- square test at an alpha level of 0.05.

The (unweighted sample size of -100) was determined through the following pathway: There were 486,303 women surveyed nationally by the Behavioral Risk Factor Surveillance System, (BRFSS, 2016) dataset. Of those, 8415 of them were in Massachusetts. Of those women, 3,759 women were Black or White women. Out of those Black or White women, 1767 were 50-74 years of age, and provided data on whether, or not they received a mammogram in the last 2 years. From that number-100 women were black. After applying BRFSS survey weights, we have 51,418. Out of those 1667 were white. After applying BRFSS weights, we have 762,308.

Table 9 White Women Ages 50-74:

Have personal healthcare provider Do not have personal healthcare provider

Mammogram in the past 2 years:	64266	11654	653720
No mammogram in the past years:	103407	5181	108588
*All Ns are weighted frequencies:	745473	16835	762308

White Women Ages 50-74:

	Have personal healthcare provider	Do not have personal healthcare provider
Mammogram in past 2 years:	86.1%	69.2%
No mammogram in past 2 years:	13.9%	30.8%
	100%	100%

Rao-Scotts Chi Square Test of Significance:	Rao- Scotts Chi Square	4.95
	p-value	0.03

*All percentages are weighted proportions.

Interpretation: Among (unweighted sample size = 1667), white women residing in Boston, Massachusetts in a Metropolitan area who provided information about whether they had a personal healthcare provider or not, and whether they had a mammogram in the last 2 years or not: 86% of White women who had a personal healthcare provider had had a mammogram in the past 2 years, while 69% of White women who did not have a personal healthcare provider had had a mammogram in the past 2 years. (All percentages are calculated from weighted frequencies). This difference was found to be statistically significant (*p* = 0.03) using the Rao-Scott Chi Square test at an alpha level of 0.05

The Behavioral Risk Factor Surveillance System (BRFSS) 2016 dataset provided 486, 303 women surveyed, of whom 8415 were in Massachusetts. Out of the 8415 women 3759 were Black or White. Out of Black or White women, 1767 were aged 50-74 and provided data, as to whether they received a mammogram in the last 2 years or not. Out of the 1767 women, 100 were Black. After applying BRFSS survey weights, we have 51,418, out of which 1667 were White. After applying BRFSS survey weights, we have 762,308. This was how the (unweighted sample size 1667) was determined.

In this study, people were excluded if they were not from Massachusetts, if their gender was male, their race not Black or White, and if they were not within the 50-74 age bracket. Participants were excluded if they did not provide data about whether they had a mammogram or not in the last 2 years. They were included in the study if they were Massachusetts' residents. They were females, Black or White, lay between 50 to 74 age range, and provided data as to whether they had a mammogram or not in the last 2 years. These exclusion criteria were put in place to align with my research interests.

Research Question 2: Is there any correlation between breast cancer screening and socioeconomic status among Black and White women, aged 50-74 in Boston, Massachusetts?

Table 10 Black Women Ages 50-74

Mammog. past

2 years

<$15,000	$15,000-	$25,000-	$35,000-	$50,000 or >
3008	<$25,000	$35,000	$50,000	1399
	3659	3841	8284	

No mammog.

past 2 years.

154	2469	498	135	1233
3162	6128	4339	8419	2632

*All Ns are

Weighted

frequencies

Black Women Ages 50-74

	<$15,000	$15,000- <$25,000	$25,000- $35000	$35000- $50,000	$50,000 or >
Mammog.	95.1%	59.7%	88.5%	98.4%	99.9%

past 2 years					
No	4.9%	40.3%	11.5%	1.6%	0.1%
mammog.	100%	100%	100%	100%	100%
past 2 years					

Rao-Scott Chi Square Test of Significance: Rao-Scott Chi square 12.29

p-value 0.02

(Weighted frequencies converted to percentage of total). *All percentages are weighted proportions

Interpretation: Among (unweighted sample size =71) Black women 50-74 years of age in Boston, Massachusetts, that provided information about their income level, and whether they had had a mammogram in the last 2 years or not: the income level with the lowest percent of women screened for breast cancer was the $15,000 to less than $25,000 group, with only 60% of these women having had a mammogram in the past 2 years. The income level with the highest percent of women screened for breast cancer was the $35,000 to less than $50,000 group, with 98% of these women having had a mammogram in the past 2 years. (All percentages are weighted). Comparing the difference between the proportions of women screened for breast cancer across the five income levels, the differences were found to be statistically significant (p = 0.02) using the Rao-Scott Chi Square test, at an alpha level of 0.05.

Table 11 White Women Ages 50-74

	<$15,000,	$15,000 -	$25,000 -	$35000	$50,000 or >

		<$25,000	$35000	$50,000	
Mammog.	22630	18430	39814	59698	363166
past 2 years					
No	6452	1385	10753	14213	52356
mammog.	29082	19815	50567	73911	415522
past 2 years					

*All Ns are weighted frequencies.

White Women ages 50-74

	<$15,000	$15,000-	$25,000-	$35000-	$50,000 or >
		<$25,000	$35000	$50,000	
Mammog.	77.8%	93.0%	78.7%	80.8%	87.4%
past 2 years					
No	22.2%	7.0%	21.3%	19.2%	12.6%
mammog.	100%	100%	100%	100%	100%
past 2 years					

Rao-Scott Chi Square Test of Significance:	Rao-Scott Chi Square	8.6
	p-value	0.07

*Weighted frequencies converted to percent of total. *All percentages are weighted proportions.

Interpretation: Among (unweighted sample size =1283) White women 50-74 years of age, resident in Boston, Massachusetts Metropolitan area, that provided information about their income level, and whether they had had a mammogram in the last 2 years or not, the income level with the lowest percentage of women screened for breast cancer was the less than $15,000 group, with only 78% of these women, having had a mammogram in the past 2 years. The income level with the highest percentage of women who were screened for breast cancer were the $35,000 to less than $50,000 group, with 98% of these women having had a mammogram in the past 2 years. (All percentages are weighted). Comparing the differences between the proportions of White women screened for breast cancer across the five income levels, the differences were found to be statistically insignificant (p = 0.07) using the Rao- Scott Chi -Square test at an alpha level of 0.05.

Research Question 3: Is there any correlation between breast cancer screening and education level among Black and White women, aged 50-74 in Boston, Massachusetts?

Table 12 Black Women Ages 50-74

	Did not finish high school	High school graduate	College graduate
Mammog. past 2 years	9135	24710	9587
No mammog. past 2yrs	2991	3213	1783

Weighted Frequency	12126	27923	11370

*All Ns are weighted frequencies. Mammog. stands for mammogram abbreviated for space.

Black Women ages 50-74

	Did not finish high school	High school graduate	College graduate
Mammog. past 2 years	75.3%	88.5%	84.3%
No mammog. past **2** years	24.7%	11.5%	15.7%
Weighted Frequency	100%	100%	100%

Rao-Scott Chi Square Test of Significance:

Rao-Scott Chi -Square	0.96
P - value	0.62

*All percentages are weighted proportions.

Interpretation: Among (unweighted sample size =100) Black women 50-74 years of age, in Boston, Massachusetts, that provided information about their education level, and whether they had had a mammogram in the past 2 years or not: the education level with the lowest percentage of women screened for breast cancer, was those that did not finish high school. Only 74% of these women had a mammogram in the past 2 years. High school and college graduates appeared more likely to have had a mammogram with 89% and 84% screened for breast cancer respectively. (All percentages are weighted). Comparing the differences between the proportions of women screened for breast cancer across the three education levels, the differences were found to be statistically insignificant, (p = 0.62) using Rao-Scott Chi Square test at an alpha level of 0.05.

Table 13 White Women Ages 50-74

	Did not finish high school	High school graduate	College graduate
Mammog. past 2 years	33514	338974	280797
No mammog. Past 2 years	10623	60620	37292
	44137	399594	318089

*All Ns are weighted

frequencies

White Women ages 50-74

	Did not finish high school	High school graduate	College graduate
Mammog. past 2 years	75.9%	84.8%	88.3%
No mammog. Past 2 years	24.1%	15.2%	11.7%
	100%	100%	100%

Rao-Scott Chi-Square Test of Significance:

Rao- Scott Chi square	3.82
p-value	0.15

*All percentages are weighted proportions.

Interpretation: Among (unweighted sample size =100) white women 50-74 years of age in Boston, Massachusetts, that provided information about their education level, and whether they had a mammogram in the past 2 years or not: the education level with the lowest percentage of women screened for breast cancer was those that did not finish high school. Only 76% of these women had a mammogram in the past 2 years. High school and college graduates appeared more likely to have had a mammogram, with 85% and 88% screened for breast cancer across the three education levels, respectively. (All percentages are weighted). Comparing the differences between the proportions of women screened for breast cancer across the three education levels, the differences were found to be statistically insignificant (p = 0.15), using the Rao-Scott Chi Square Test, at an alpha level of 0.05.

Summary and Conclusion

In this Section, the results and findings of the quantitative statistical data have been documented. The Research Questions 1, 2, and 3 have been evaluated and answers generated, which have provided a better understanding of the research problem. The findings and interpretations from Section 3 empowered this researcher to apply the results to professional practice and unveil the implications for social change in Section 4.

Section 4: Nature of the Study and the Reason for Conducting the Study

Introduction

The purpose of this study was to examine breast cancer screening access to mammography services of Black and White women, aged 50-74 in Boston, Massachusetts. This study was a cross-sectional quantitative, descriptive one by nature, which investigates information about the extent of correlation of the variables in the study. Albright and Winston (2015) suggested that the quantitative approach allows for comparison between the dependent variable - breast cancer screening and independent variables - socioeconomic status, access, and educational level to decipher how these variables impact the dependent variable. This study was conducted essentially to contribute to social and preventive medicine and to highlight a major healthcare opportunity in Massachusetts, which many women fail to take advantage of due to a wide variety of reasons.

Key Findings in the Study

A quick glance at the statistical demographic analysis on race and ethnicity highlighted the categories of White and Black women in Massachusetts who had access to breast cancer screening in the past 2 years, according to the BRFSS, (2016), 85.4% Whites as opposed to 83.4% Blacks. 85 % African American (Black), who had had a personal healthcare provider had mammogram in the past 2 years, while 76% of African American women without a personal healthcare provider had a mammogram in the past 2 years. This difference was found to be statistically insignificant-- ($p = 0.71$). On the other hand**,** 86% of White women who had a personal healthcare provider had a mammogram in the past 2 years, while 69% of White women without personal healthcare provider had a mammogram in the past 2 years. This difference was found to be statistically significant (p = 0.03).

Among Black women 50-74 years of age in Boston, Massachusetts who provided information regarding their income level and whether they had a mammogram in the last 2 years or not: women with the lowest percentage (60 %) and income of ($15,000 - <$25,000) had mammogram in the past 2 years. Women with the highest percentage (98%) and income level ($35,000 – (< 50,000) had mammogram in the past 2 years. The difference was found to be statistically significant (p = 0.02). For White women, 50-74 years of age in Massachusetts, who provided information about their income level, as to whether they had mammogram in the past 2 years, those with the lowest percentage (78%) and income level (<$15,000) had mammogram in the past 2 years.

Women with the highest income percentage (98%) who screened for breast cancer in the past 2 years were the ($35,000 - $50,000) group. When this researcher compared the differences across the five income levels, the differences were found to be statistically insignificant (p = 0.7).

Black women aged 50-74 in Boston, Massachusetts, who provided information about their education level and whether they had mammogram or not in the last 2 years: the education level with the lowest percentage (74%) of women who screened for mammogram in the past 2 years did not finish high school. In contrast, both high school and college graduates appeared more to have had a mammogram, with (89%) and (84%) screened for breast cancer, respectively. When this researcher compared the differences between the number of women screened across the three education levels, the differences were found to be statistically insignificant ($p = 0.62$).

Among White women aged 50-74 in Boston, Massachusetts who provided information about their education level and whether they had a mammogram or not in the last 2 years, women with education level with the lowest percentage (76%) who screened for breast cancer did not finish high school. But high school and college graduates appeared more likely to have had a mammogram, with (85%) and (88%) screened for breast cancer, respectively. When this researcher compared the differences between the two categories of women who screened across the three education levels, they were found to be statistically insignificant ($p = 0.15$).

The literature review provided a wealth of information in this study. Mammography in our recent time has evolved as a radiological instrument for the preventive diagnosis of women at risk of breast cancer, irrespective of their race or ethnicity. Sixty-nine percent (69%) of women 40 years and older according to the American Cancer Society (2014) who had mammogram in the past 2 years were Black and 65% were White women. Thirty-one (31%) percent of (Black) and 35% (White) women failed to take advantage of the biannual mammography screening. This confirms the results and interpretations of the study.

Limitations of the Study to Generalizability

The study has a limitation that the dataset used only covers the State of Massachusetts, and the sample population of Black and White women are resident in Boston, Massachusetts. This means that the study can only be generalizable within the Commonwealth of Massachusetts. It therefore follows that a national study of this kind will be vital. By the nature of the self-report survey from the Behavioral Risk Factor Surveillance System (BRFSS), (2016) dataset, the study is disadvantaged of accurate information recall. It was believed that the validity or believability of assumptions in this study stem from the fact that there are commonalities of traditional belief system across the world, which makes it possible for us to assume that immigrant groups import such patterns.

In addition, patterns of cultural impediments to the reception of modern healthcare services such as breast cancer screening will be the same altogether. This potential establishes itself as valid for generalizability in Massachusetts. It was also believed that the number of women surveyed and included would be representative to yield appropriate results in the study. The Massachusetts BRFSS (2016) dataset had great impact on generalizability. Participants had self-report on the surveys. This would affect the reliability and validity of the results, because information provided is likely to be biased. According to Osbourne (2013), information provided in a study remains dependable due to the quality of such information, but missing responses that are not part of the final analysis is bound to affect external validity.

Recommendations for Further Research

This researcher's first recommendation is that it will be necessary to also conduct a qualitative study on this topic as opposed to a quantitative cross-sectional statistical study. This will enable the two categories of women— Black and White to be interviewed using the phenomenological tool, which will enable them to tell their own stories in their own voices and analyzed accordingly. This way they will be able to narrate their stories about their experiences without restriction. The stories narrated by these women will lend unbiased credence as to how the women feel about breast cancer screening and access within the healthcare system. For further research, it will be useful to research on younger populations, around the age range 18 - 40 years, not just in Massachusetts but nationally too, to see if ageism has any impact on results.

Elaborate collaboration with the Community - Based Practice Research, will empower women to become advocates to breast cancer screening themselves. The women will be able to reach other women in their communities at their meeting places such as churches, places where they converge for social events, market- places, and schools. This practice should be quite productive, as well as save cost and lives. More research should focus on immigrant populations, their cultural beliefs, and the healthcare workforce. Further research should concentrate on better communication between patients and the healthcare practitioners. Healthcare policies should be developed to accommodate the cultures that make up the breast cancer screening patient body.

Professional Practice Recommendations

Among the key outcomes of the literature are the co-mingling of the idea that point to the fact that early breast cancer screening is not only a scientific and preventive medical imperative that saves lives, but also a deep seated social problem that calls for careful and urgent manipulation of complex social barriers, in order for them to be resolved with the ultimate goal of saving lives. Facilitating access to breast cancer screening is of paramount importance. Healthcare professionals should focus on helping women to be conversant with relevant healthcare resources, according to the National Institute of Health (2017), so that the opportunity to obtain healthcare access will be available to them.

This researcher also recommended that the results of this study be used to create awareness about breast cancer screening in various communities and to identify the risk factors and address them expeditiously. Healthcare professionals should encourage and support those individuals who have creative possibilities to create popular songs to mobilize the masses for awareness of the dangers of not screening for breast cancer. This could be played on radio and television. The pervasiveness of such program could reach many people conveying the dangers of non-compliance to breast cancer screening recommendations. Finally, a special day could be devoted as breast cancer screening day—free of charge in Massachusetts and nationally.

Methodological Implications of the Study

This study was a quantitative, cross-sectional descriptive study. It comprised the use of a secondary dataset, provided by the Behavioral Risk Factor Surveillance System (2016) for Massachusetts. This researcher utilized this specific methodology, - the chi square test, to answer my research questions because it is the best, according to McHugh (2013), as a significance statistic and is followed with a strength statistic. It represents the best tool that provided answers to solve the problem of breast cancer screening and access. When we utilize a secondary quantitative dataset provided by BRFSS (2016), we engage in - a comparative analysis of the two groups of Black and White women in Boston, Massachusetts. This quantitative research involves a deductive approach methodology, which helped me to understand complex relationships among the key variables.

Potential Impact for Positive Social Change

The findings from this study are in consonance with Walden University outlook to social positive change. With the outstanding results from the study, researchers, healthcare administrators, the women populations and organizations, Stakeholders in healthcare organizations, and influential Stakeholders in various communities in the Commonwealth of Massachusetts, will be able to spread awareness about breast cancer screening. This will be made effective through Television and Radio programs. All the influential people mentioned above- researchers, healthcare administrators and others, will be empowered to create interventional programs and initiatives about the scourge of breast cancer among women, especially emphasizing the need for breast cancer screening and access, among Black and White women. Powerful educational interventions will enable the women in communities to avoid exposing themselves to this dreadful killer-disease, so that it can be caught and killed before metastasis. All these changes could lead to manifold social transformation in people over the years. It could lead to complete transformation on how people think about scientific intervention in medicine. Above all, healthcare policy makers will utilize the statistical results of this study, in the areas of social justice and equity, and this will open doors of opportunities for all women and enable them to engage in breast cancer screening access.

Conclusion

It is a well- known fact that cancer is a killer disease, especially if it is not discovered early enough to prevent metastasis. Breast cancer is only second to lung cancer, and it is indeed insidious in nature and ubiquitous. It knows no young or old. Smith et al, (2013) warns that any neglect of the early stages can be dangerous when the disease arrives undetected. All women should adhere to the recommendations by breast cancer experts, to regular breast cancer screening. The feeling of being stigmatized should be overridden by the fact that human life is involved in this situation, and so women should do everything possible to engage in regular breast self -examination (BSE), and to stick to the recommended bi-annual mammograms, in order to save their lives.

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