

2019

## Affordable Care Act and Racial Inequity in Breast Cancer Survival Rates

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*Walden University*

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# Walden University

College of Health Sciences

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Nadine Terry-Lawrence

has been found to be complete and satisfactory in all respects,  
and that any and all revisions required by  
the review committee have been made.

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The Office of the Provost

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2019

Abstract

Affordable Care Act and Racial Inequity in Breast Cancer Survival Rates

by

Nadine Terry-Lawrence

MS, Kaplan University, 2013

BS, Kaplan University, 2011

Doctoral Study Submitted in Partial Fulfillment  
of the Requirements for the Degree of  
Doctor of Healthcare Administration

Walden University

November 2019

## Abstract

African American women are more likely than White women to be diagnosed with breast cancer after the disease has progressed to advanced stages. Further, African American women experience higher breast cancer mortality rates than White women at all stages of cancer diagnosis. The purpose of this quantitative comparative study was to examine differences between implementation of the Affordable Care Act (ACA) and 5-year breast cancer survival rates among African American and White women. The independent variable was African American women and White women who were survivors of breast cancer after the ACA implementation; the dependent variables were breast cancer survival rates after ACA implementation. Data were gathered from the Surveillance, Epidemiology, and End Results (SEER) program for the time period between 2010 and 2015. The theoretical foundation for this study was Penchansky and Thomas's concept of healthcare access. This quantitative study followed a retrospective design using cohort data from the SEER program. Data were analyzed via independent samples t-test and chi-square test of association. Results indicated that White women had a higher 5-year survival rate than African American women; the association between race and survival was significant. White women survived also survived breast cancer for more months, on average, than African American women. Findings indicate that racial disparities in breast cancer survival have endured, post ACA. The primary social change implication is that more research is needed to improve the breast cancer survival rates of African American women. The ACA may be working to help reduce the racial disparities in breast cancer survival, but providing access to healthcare is not necessarily enough.

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## Dedication

I would like to dedicate my study to my loving family and friends. First and foremost, to my late mother Ozella. Who taught me to persevere and prepared me to face all challenges with faith and humility. Although she is not here to give me strength and support, I always feel her presence to urge me to aim high and never give up. To my late sister Odessa, who constantly supported me until her unexpected death. To my husband Curtiss, who has supported me throughout this process. To my God sent loving and selfless daughter, whom I love dearly IquoImoh, who have motivated me, made me stronger, better and more fulfilled than I could have ever imagined. Lastly, to my church family and friends, who has been there with their encouraging words of support.

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## Section 1: Foundation of the Study and Literature Review

### **Introduction**

The Patient Protection and Affordable Care Act, typically reduced to the Affordable Care Act (ACA), was signed into law in March 23, 2010. The intent of the law was to provide insurance and healthcare access to millions of uninsured Americans (ACA, 2018). The law also aimed to improve access to care for everyone – even those who were previously insured – through the elimination of clauses for preexisting conditions and out-of-pocket costs for preventive services (Cooper, Kou, Dor, Koroukian, and Schluchter, 2017; Rosenbaum, 2011). The researchers have indicated that the ACA has resulted in a significant decrease to the number of uninsured individuals in the United States (Blumenthal & Collins, 2014), there remain considerable racial disparities in care quality and outcomes (Adepoju, Preston, and Gonzales, 2015). Scholars have examined the effects of the ACA on factors such as insured status and uptake of preventive care (Cooper et al., 2017; Fedewa, Goodman, Flanders, Han, Smith, Ward, and Jemal, 2015; Hamman & Kapinos, 2015; Jensen, Salloum, Hu, Baghban Ferdows, & Tarraf, 2015; Nelson, Weerasinghe, Wang, & Grunkemeier, 2015; Sabik & Adunlin, 2017; Wharam, Zhang, Landon, LeCates, Soumerai, and Ross-Degnan, 2016), but little is known about the ACA's effect on mortality, particularly among those at the greatest risk for poor care and outcomes.

The aim of this research was to explore survival rates within the specific context of breast cancer among a population at the greatest risk for breast cancer death – African

American women. I conducted a longitudinal examination of breast cancer survival rates among White and African American women to understand if racial disparities persisted in the years following enactment of the ACA. Researchers have indicated that although African American women are less likely to develop breast cancer than White women, they are 42% more likely to die from the disease (DeSantis et al., 2016). There is a paucity of research on the effects of the ACA on breast cancer survival among White and African American women. If disparities in incidence and survival rates are evident, findings may serve as an important indicator that immediate improvements beyond the current ACA implementation are required.

In this section, I provide an introduction to the current research. I begin with the problem and purpose statements, followed by the research questions and hypotheses. The theoretical foundations and nature of the study are presented. A review and analysis of the existing literature related to the ACA, health outcomes, and racial disparities are then presented. Next, definitions, assumptions, and delimitations are reviewed. I conclude the section with a statement of the study's significance and my concluding remarks on the need for this study.

### **Problem Statement**

The ACA of 2010 increased access to medical care for millions of Americans, via the provision of health insurance (Blumenthal, Abrams, & Nuzum, 2015). Previous researchers have indicated that the presence of healthcare insurance significantly improved the rates at which women access preventive healthcare services (Cooper et al., 2017); thus, by providing healthcare coverage to more people, the ACA may result in improved care outcomes via the early detection and treatment of health conditions.

Access to preventive care services is particularly salient to African American women, who are more likely than White women to be diagnosed with breast cancer after the disease has progressed to advanced stages. The late diagnosis among African American women is partially attributed to lower rates of mammogram uptake among these women (Howlader et al, 2016). The researchers have indicated that African American women experience higher breast cancer mortality rates than White women at all stages of cancer diagnosis (Mandelblatt, Sheppard, & Neugut, 2013). Prior to the ACA, this disparity may have related to unequal access to specific, high-quality treatment among African American women (DeSantis et al., 2016). The current research was needed to understand if racial disparities in breast cancer survival rates persisted in the years following the ACA's passage.

### **Purpose of the Study**

The purpose of this quantitative comparative study was to examine the differences between implementation of the ACA and 5-year breast cancer survival rates, with a specific focus on survival rate disparities between African American and White women. The independent variable was African American women and White women who were survivors of breast cancer after the ACA implementation, for the 6 years examined. The dependent variables were breast cancer survival rates after ACA implementation for the 6 years examined. Data were gathered for the time period between 2010 and 2015, and study data were drawn from the Surveillance, Epidemiology, and End Results (SEER) Program (National Institute of Health [NIH], 2018), which is an authoritative source of

information regarding cancer incidence and survival within the United States. The SEER database contains information on cancer incidence and survival rates for approximately 34.6% of the U.S. population (NIH, 2018).

For African American women diagnosed between 2006 and 2012, the average 5-year survival rate was 82%; among White women, the survival rate was 92% (Howlader, Noone, & Krapcho, 2016). While behavioral and biological differences affect breast cancer survival rates (Keenan et al., 2015), the persistent racial disparity in breast cancer mortality indicates that nonbiological factors, such as care quality and access, may account for racial differences in breast cancer survival (Mandelblatt et al., 2013).

### **Research Questions and Hypotheses**

The Research Question (RQ): Do differences exist in the 5-year breast cancer survival rate between African American and White women after the enactment of the ACA?

H<sub>0</sub>1: No significant differences exist in the 5-year breast cancer survival rate between African American and White women after the implementation of the ACA.

H<sub>a</sub>1: Significant differences exist in the 5-year breast cancer survival rate between African American and White women after the implementation of the ACA.

### **Theoretical Foundation for the Study**

The theoretical foundation for this study was based on Penchansky and Thomas's (1981) concept of healthcare access. According to the scholars, *access* describes the degree of fit between healthcare clients and the healthcare system (Penchansky &

Thomas, 1981). Four dimensions contribute to *fit*, including accessibility, accommodation, affordability, and acceptability. *Availability* describes “the relationship of the volume and type of existing services (and resources) to the clients’ volume and types of needs” (Penchansky & Thomas, 1981, p. 126). That is, availability describes the care providers, facilities, and treatment options that are available to a patient.

*Accessibility* describes the access that an individual has to care providers and facilities, specifically in the context of transportation, travel time, and travel costs.

*Accommodation* describes “the relationship between the manner in which the supply resources are organized to accept clients” (Penchansky & Thomas, 1981, p. 126).

Elements that determine accommodation include systems for appointment-setting, hours of operation, walk-in facilities, and telephone services. *Affordability* describes the relationship between healthcare costs and a client’s income, insurance status, and ability to pay. Finally, *acceptability* describes clients’ attitudes toward the characteristics of providers.

Penchansky and Thomas’s (1981) healthcare access framework provided a lens through which to examine disparities in survival outcomes among African American and White women with breast cancer. By exploring study results through this framework of access, I examined how factors beyond insurance coverage contribute to persistent racial disparities in healthcare outcomes. The specific context in which this framework was implemented was breast cancer survival.



### **Nature of the Study**

The nature of this study was quantitative, and I followed a retrospective design using cohort data from the SEER Program (see NIH, 2018). While qualitative methods are useful for the in-depth, inductive exploration of study phenomena (Cooper & Schindler, 2003), they do not allow researchers to explore differences between study variables. Because the aim of this research was to examine the differences between predetermined independent and dependent variables, a quantitative method was most appropriate. The independent variable was African American women and White women who were survivors of breast cancer after the ACA implementation for the 6 years examined. The dependent variable was breast cancer survival rates after the ACA implementation for the 6 years examined.

A cohort design was selected. According to Hoe and Hoare (2012), cohort studies are observational investigations that utilize longitudinal data to examine the progression of phenomena. This type of design was in direct alignment with the aim of the current investigation, which was to examine changes in racial discrepancies of breast cancer survival rates. Longitudinal data, consisting of survival data for the years 2010 through 2015, were pulled from the SEER database (NIH, 2018) for this investigation.

The study population consisted of the estimated 2.3 million African American and White women who were newly diagnosed with breast cancer between 2010 and 2015 (ACS, 2017). The inclusion criteria were as follows: (a) women, (b) newly diagnosed with malignant breast cancer between January 2010 and December 2015, (c) between the ages of 18 and 65, and (d) identified as African American or White ethnicity. There were

very clear reasons for these inclusion criteria. First, the data were somewhat limited, so to ensure the most complete dataset, the sample was limited to women diagnosed with breast cancer between 2010 and 2015. In addition, this limited the sample to those who were newly diagnosed, to prevent comparison of new and recurrent cases of breast cancer. In order to prevent the sample from being unnecessarily limited by age, a broad range of ages (18 to 65) was included. The focus of this study was the mortality of breast cancer among African American and White women; thus, these racial and sex inclusion criteria were required. Outliers and records that were not hospital-based were excluded from the dataset. Deaths from all causes were included. I organized data in an Excel spreadsheet, only including data for African American and White women. Data were then uploaded into SPSS for analysis. An independent samples *t* test was conducted to determine if a statistically significant differences existed in the 5-year survival rate between African American and White women

### **Literature Search Strategy**

A number of scholarly databases were accessed to locate literature for this review, including Academic Search Premier, ProQuest, EBSCO, ABI Inform, JSTOR, First Search, and Sage. When possible, studies included in this review were limited to those published within the last 5 to 7 years. However, older relevant studies and appropriate seminal literature were also included. A number of search terms were used to locate relevant studies, including *Affordable Care Act*, *healthcare disparities*, *African American cancer outcomes*, *breast cancer*, *survival disparities*, *cancer mortality*, *racial disparities*, *access to care*, and *cancer treatment*.

## Literature Review

### Affordable Care Act

To begin the discussion on breast cancer incidence and survival in the years since implementation of the Affordable Care Act (ACA), it is first necessary to discuss what the ACA is. The law was designed to be slowly implemented over the course of several years until its full implementation on January 1, 2014. At full implementation, the law was designed to expand Medicaid and bring state health insurance exchanges into the healthcare process. In many states, Medicaid was expanded to provide coverage for adults with income below 138% of the poverty line (ACA, 2018). Subsidies were provided to individuals within certain income levels in order to reduce healthcare costs and expand general access to healthcare (Rosenbaum, 2011). The subsidies made available were disbursed among households with incomes between 100% and 400% of the federal poverty level (ACA, 2018). The ultimate goal of the ACA was to provide healthcare coverage to individuals who were previously uninsured (Cooper, Kou, Dor, Koroukian, & Schluchter, 2017).

Another goal of the ACA was to create a near-universal level of health insurance coverage for U.S. citizens (Rosenbaum, 2011). While the primary intent of the law was to expand access, a second goal was to improve three aspects of healthcare: affordability, quality, and fairness in treatment. In addition, lawmakers had several other goals with the ACA. For example, the Act was intended to reduce wasteful healthcare spending while maintaining high quality care. The law was also designed to increase access to, and uptake of, preventive care to achieve long-term improvements to the system that would

benefit covered individuals and improve public health, overall (Rosenbaum, 2011). Some of the specific aims for achieving overall improvements to care quality and patient outcomes included the elimination of out-of-pocket costs for preventive screenings and services, such as mammograms and colonoscopies (Cooper et al., 2017).

Regarding improving healthcare quality, the ACA was designed so that new methods of healthcare delivery could be accomplished, such as through medical homes and bundled payments (Rosenbaum, 2011). Medical homes “emphasize team-based, continuous, and holistic care across the care continuum” (Adepoju et al., 2015, p. S665). The many changes associated with the ACA were meant to increase monitoring of care quality through assessments and performance reporting among healthcare organizations. The law also set targets for improving serious and chronic health conditions that are often associated with hospital admissions and readmissions.

The end result of the ACA for individuals requiring care was to be experienced in several areas (Rosenbaum, 2011). Among the most important changes was making primary care more accessible, particularly among populations who were traditionally underserved. At the time of the ACA’s development, an estimated 60 million individuals in the United States were underserved. Expansion of healthcare to these underserved populations was designed to occur through the use of hospitals, doctors’ offices, community health centers, and the National Health Service Corps. Between fiscal years 2011 and 2015, \$11 billion was set aside for investment in health centers; an additional \$1.5 billion was directed to the National Health Service Corps (Rosenbaum, 2011). The designers of the law expected that through the expansion of funding to health center

organizations, the number of patients served would double between 2010 and 2015, resulting in an estimated 40 million patients served, annually (Rosenbaum, 2011).

Beyond the goal of increasing access, the law was also designed to improve the overall public health (Rosenbaum, 2011). Part of the ACA's emphasis was the improvement of primary healthcare services available to underserved communities through direct public health investments. New regulatory requirements included the reduction of cost-sharing among these communities. An additional \$15 billion was set aside in the Prevention and Public Health Trust Fund to ensure that greater preventive care was extended to underserved communities. Specific subpopulations were identified that could most benefit from these investments, which were designed to improve access to services such as oral healthcare, tobacco cessation programs, and personalized prevention planning. Consequently, through multiple avenues, the ACA was designed to improve the public health, particularly among communities with poor access to healthcare services (Rosenbaum, 2011).

While the ACA may help to reduce racial disparities in cancer outcomes via the expansion of health insurance coverage, it does not cover indirect costs associated with treatment and follow-up care, such as lost wages (Palmer et al., 2015). Also, it does not address access issues related to transportation, nor the availability of doctors and medical facilities to which individuals have access. Finally, the law does not address the complex cultural and social barriers that minority and underserved communities often face, especially with regards to using preventive services.

Consequently, although the ACA has improved healthcare access to millions of U.S. individuals, via the provision of insurance, barriers still exist that disproportionately affect minorities. These barriers are evident in persistent disparities in health outcomes and treatment among minorities. Thus, it is essential for continued research into the effects of the ACA on a number of health-related factors in order to identify ways the law could be improved. For example, Palmer et al. (2015) called for ongoing research on the effects of the ACA on healthcare costs for cancer patients and survivors. The current study addressed an important gap in the current knowledge by examining potential racial disparities in breast cancer survival rates among African American and White women.

#### **African American Medical Care Disparities**

The population of focus for the current study was African American women. To contextualize disparities among this population, it is helpful to first review research on healthcare disparities among African Americans, as a whole. Various indicators make evident that African Americans typically experience poorer health outcomes than Whites (Fuller-Rowell, Curtis, Doan, & Coe, 2015). For example, a study on inflammation among African American and White participants revealed that educational attainment had a greater impact on reducing inflammation among Whites than among African Americans (Fuller-Rowell et al., 2015). Participants for the study included 1,192 African Americans and 1,487 Whites drawn from longitudinal studies. The researchers analyzed blood work indicators of inflammation and compared the data against educational attainment (Fuller-Rowell et al., 2015). Despite the positive effect of increased educational attainment on reducing inflammation in both groups, the effect was stronger among

Whites (FullerRowell et al., 2015). Although the reason for this disparity was unclear, findings contributed to the existing body of research regarding health disparities between African

Americans and Whites.

### **Cancer Disparities Among Ethnicities**

Although the overall health outcomes for minorities in the United States have improved significantly in recent decades, racial disparities persist (2012 National Healthcare Disparities Report, 2014). Between 2010 and 2015, racial disparities in cancer incidence continued to occur between minority subpopulations and Whites (O’Keefe, Meltzer, & Bethea, 2015). As the U.S. population becomes more diverse, efforts to improve care access and outcomes among minorities are of increasing importance (Karliner, Marks, & Mutha, 2016).

Due to a number of factors, including reduced tobacco used, improved detection methods, and improved treatments, cancer survival rates have improved for men and women of all ethnicities. However, between 2010 and 2015, African Americans continued to experience high cancer mortality rates and short survival times – rates that were only surpassed by native populations (O’Keefe et al., 2015). This phenomenon was partly attributed to several factors. For example, African Americans and Hispanics continued to smoke at a higher rate than Whites during this period, despite overall smoking declines. Consequently, these populations experienced higher rates of lung cancer mortality than Whites, and a 26% disparity was identified between African Americans and Whites (O’Keefe et al., 2015). While differences in genetics, behaviors, and environmental exposures may contribute to racial disparities in cancer incidence and

outcomes, it is also likely that differences in access to care, care quality, and appropriateness of treatment may contribute to the White-African American disparities, in particular. For example, Gerhard et al. (2017) examined relationships between patient race, insurance coverage, access to advanced treatment, and the actual treatment received among men with high-risk localized prostate cancer. Data were pulled from the National Cancer Database for the years 2010 through 2012. A multivariable regression was conducted to evaluate the interaction between primary health outcomes, race, insurance status, and technology available at treating facilities (Gerhard et al.,2017).

Analysis of Gerhard et al.'s (2017) data indicated that the receipt of nondefinitive treatment was most common among minorities, those who were uninsured or on Medicaid, and those who were treated at facilities without the technology needed to offer most effective treatment. Non-White patients and those uninsured or on Medicaid were most likely to receive treatment at facilities without highly effective treatment technology (Gerhard et al.,2017). Thus, disparities in cancer outcomes were observed based on race and insurance status, which was likely related to individuals' access to the most effective cancer treatments (Gerhard et al.,2017). The researchers explained that access to quality cancer care was a major contributor to the racial disparities observed in cancer outcomes, as "Medically-underserved populations do not differ in response to prostate cancer treatment" (Gerhard et al., 2017, p. 2). Indeed, healthcare organizations that provide more equal access to high-quality cancer treatments, such as the Veterans Health Administration, are not characterized by the same level of racial disparities in cancer



outcomes evident in systems that do not provide such equal access (Daskivich, Kwan, Dash, & Litwin, 2015).

A number of factors may contribute to the inequalities in health status, treatment, and outcomes between African Americans and Whites. In this section, I review regarding different factors that contribute to the disparities. As follows, barriers related to trust, the lack of targeted messaging, and insurance statuses are discussed. Additional causes for racial disparities in outcomes are discussed later in this section, as they relate specifically to cancer outcomes.

**Trust.** African Americans tend to have a lower level of trust in the healthcare system than Whites (Boulware, Cooper, Ratner, LaVeist, & Powe, 2016). Surveys conducted among people between the ages of 18 and 75 revealed that non-Hispanic Black participants were less likely to trust their physicians than non-Hispanic Whites (Boulware, et al., 2016). Following analysis of the survey data, Boulware et al. (2016) concluded that there was a slightly greater distrust of hospitals among non-Hispanic Blacks. The finding that African Americans distrusted their physicians was part of a larger legacy of distrust arising from generations of racial discrimination in the healthcare system and healthcare research (Boulware et al., 2016). Such findings suggested that African Americans had divergent experiences within the healthcare system that may contribute to a lack of participation in that system.

Mistrust may or may not manifest as explicitly racial, as demonstrated in a study by Dale, Bogart, Wagner, Galvan, and Klein (2014). This study, conducted among African Americans living with HIV, was intended to shed light on why African

Americans demonstrated worse health behaviors than Whites (Dale et al., 2014). Over the course of the 6-month study, mistrust was studied among 214 participants (Dale et al., 2014). Dale et al. found that African American participants, monitored electronically, were less likely to adhere to their antiretroviral medication than White patients. In addition, Dale et al. found that the lack of medical adherence was correlated with participants' general mistrust of providers. That is, low levels of trust in providers may cause patients to question the treatment provided by doctors and thus, result in poor adherence to treatment regimens. Although participants did not believe providers treated them differently based explicitly on race, mistrust toward healthcare providers was correlated with poorer outcomes among African American patients (Dale et al., 2014).

In another study, Elopre, Kudroff, Westfall, Overton, and Mugavero (2017) found that low levels of trust in healthcare providers may foster lower levels of access to various types of healthcare services, which might increase the likelihood of poor health outcomes. The study was conducted among individuals who accessed preexposure prophylaxis clinics in Alabama, a service designed to reduce the contraction and spread of HIV. Although the greatest need for this service exists among African Americans, Elopre et al. found that Whites were much more likely to use the clinic than African Americans. For example, African American men who had sex with men were identified as the population at greatest risk for contracting HIV, yet they were less likely to visit the clinic than other populations with significantly lower risks of contracting HIV (Elopre et al., 2017). Similarly, Boulware et al. (2016) and Dale et al. (2014) indicated that a lack

of trust in healthcare providers may make individuals less likely to seek out healthcare services.

**Targeted messaging.** Another reason for the disparities in healthcare outcomes among African Americans may relate to the lack of targeted messaging aimed at African Americans. Another interesting finding from a study by Elopre et al. (2017) was that a lack of messaging that specifically targeted the African American population may have been partly responsible for the lower rates of participation at the clinic among African American men who were intimate with other men. That is, health messaging that targets minorities may improve healthcare outcomes among these populations because these groups may better identify with racially-targeted messages.

Targeted messaging and unique ways of reaching out to subpopulations were explored by James et al. (2016), who noted that African American women demonstrated high rates of technology adoption and might benefit from e-health and mobile health interventions. The researchers surveyed 589 women to assess factors that motivated them to participate in health research. Many African American women demonstrated a willingness to receive text messages as part of a research study and indicated that they had independently used health-related apps at some point in the previous 30 days. This finding was particularly strong among younger women (James et al., 2016). Such findings suggested that healthcare efforts might be amplified by making them culturally specific, appealing to subpopulations using tools that are already adopted. Other scholars have emphasized the importance of addressing cultural differences in order to improve

healthcare equality. For example, Adepoju et al. (2015) argued that creating a culturally competent workforce of healthcare providers was key to reducing disparities.

**Insurance status.** Being uninsured may also contribute to racial inequities in cancer outcomes. Minorities are less likely to have insurance that provides access to high-quality care. Thus, a lack of insurance may help explain a significant portion of the discrepancies in access to care, as well as health outcomes, among African Americans (Lillie-Blanton & Hoffman, 2005).

Despite evidence that indicates racial disparities in care access and outcomes is related to insurance status, it is important to note that insurance coverage alone does not eliminate observed inequalities. For example, government insurance through Medicaid does not provide patients with the same level of access to high-quality care as does private insurance. Individuals who are insured through Medicaid are more likely to initially present with advanced-stage cancer and are less likely to receive high-quality, directed therapy than individuals with private insurance or Medicare (Walker et al., 2014).

### **African American Cancer Outcomes**

As of 2016, the American Cancer Society reported that it anticipated 189,910 new cases of cancer and 69,410 cancer deaths among African Americans (DeSantis et al., 2016). This statement came despite a decrease in the incidence of certain cancers decreased among African American men between 2003 and 2012, with an overall reduction in all cancers by 2% per year. The reduction in cancer incidence among

African American men included a reduction in the three most common cancers among men: prostate, lung, and colorectal cancer. However, during the same time period, the overall rate of cancer did not decrease among African American women. Although rates of lung and colon cancer dropped among African American women, the incidence of breast cancer increased.

The reduced incidence of cancer among African Americans does not reveal the elimination of racial disparities in disease prevalence and outcomes. For example, despite the reduction in colorectal cancer rates among African Americans, the incidence rate remains 20% higher among African Americans than among Whites. Further, the rate of colorectal mortality is 45% higher for African Americans than Whites (Mobley & Kuo, 2017). Essentially, the increase in rates of breast cancer among African American women cancelled out drops in other forms of cancer among this racial segment, resulting in no overall reduction to cancer incidence among African Americans (DeSantis et al., 2016). For this reason, it is particularly important to examine breast cancer incidence and outcomes for African American women.

### **Breast Cancer in the United States**

Breast cancer is the most common cancer diagnosed among women in the United States; its rate of mortality is only surpassed by that of lung cancer (DeSantis, Fedewa, Sauer, Kramer, Smith, & Jemal, 2016). Research indicates that about 12% of U.S. women will be diagnosed with breast cancer in their lifetime (DeSantis et al., 2016). Breast cancer diagnoses account for 29% of all new cancer cases in women and is

responsible for 15% of cancer-related deaths among women (Daly & Olopade, 2015). It is encouraging to note that breast cancer deaths are on the decline; between 1989 and 2012, death rates from the disease decreased by 36% (DeSantis et al., 2016). Although the decline in breast cancer mortality is reflected across all racial groups, significant race-based disparities persist. For example, as discussed later in this section, the rate of breast cancer mortality is 42% higher in African American women than White women (DeSantis et al., 2016).

### **African Americans and Breast Cancer**

Breast cancer mortality rates are higher for African American women than for White women. As DeSantis et al. (2016) explain, although African American women are less likely to develop breast cancer than White women, they are 42% more likely to die from the disease. The incidence rate of breast cancer among Whites is 128 per 100,000; among African Americans, the rate of incidence is 123 per 100,000 (Daly & Olopade, 2015). However, the breast cancer mortality rate for White women is 21.7 per 100,000 and 30.6 per 100,000 for African American women (Daly & Olopade, 2015).

Between 1975 and 2011, White women experienced a 23% increase in breast cancer incidence but a 34% decrease in mortality; during the same period, African Americans experienced a 35% increase in incidence but only a 2% decrease in mortality (Howlander et al., 2014). This difference “likely reflects a combination of biologic and non-biologic factors, including differences in stage at diagnosis, obesity and comorbidities, tumor characteristics, as well as access, adherence, and response to treatment” (DeSantis et al., 2016, p. 33). Across the United States, death rates from

breast cancer among White women ranged from 18.7% in Vermont to 25.4% in Nevada; whereas the rate among African American women ranged from 21.7% in Minnesota to 35.0% in Oklahoma (DeSantis et al., 2016).

Data from a more recent, but shorter period of time revealed that the increase in breast cancer incidence among African American women has persisted. Between 2000 and 2009, the incidence of breast cancer increased slightly among African American women, but decreased among White women (O’Keefe et al., 2015). O’Keefe et al. (2015) noted a 12% gap in the survival rate between African American and White women who had breast cancer, with White women surviving more often. The researchers hypothesized that this phenomenon might be due to later stages of diagnoses among African American women. Following this trend, an analysis of U.S. breast cancer incidence data indicated that the median age for breast cancer death is 69 years among White women, and 62 years among African American women (DeSantis et al., 2016).

Similarly, Mandelblatt et al. (2013) reported a 12.9% difference in 5-year breast cancer survival rates between African American and White women, with higher rates of survival among Whites. The African American/White disparity in breast cancer survival rates remained fairly constant between 1991 and 2005. Mandelblatt et al. (2013) could make no firm conclusions regarding the reasons for this phenomenon; however, the researchers noted racial differences in chemotherapy dosage, intensity, and rates of treatment completion. Such factors were associated with survival rates.

The American Cancer Society reported that as of 2016, there continued to be disparities in cancer-related death rates among African Americans and Whites, with more

African Americans dying from the disease (DeSantis et al., 2016). There were, however, some subtleties to this phenomenon. Overall, the gap in cancer mortality rates between African Americans and Whites narrowed by 2016, which was part of the overall downward trend in cancer deaths among African Americans, which occurred between the early 1990s and 2016. Despite this decrease, the 5-year survival rate for African Americans continues to lag behind that of Whites for almost all types of cancers, regardless of stage of diagnosis (DeSantis et al., 2016). DeSantis et al. (2016) suggested that the disparity in cancer mortality might be the result of unequal healthcare access, positing that ensuring equitable access to various types of healthcare might improve cancer survival rates. As Keenan et al. (2015) explained, “Although patients with breast cancer should have the same opportunities for treatment success regardless of their race, inequity in breast cancer outcomes more heavily affects minority women and their families” (p. 3621).

A review of the literature indicated a number of factors may contribute to the African American/White discrepancy in cancer outcomes. As follows, the leading causes of disparities are reviewed. These factors include insurance status, mammogram uptake, treatment delays, follow-up care, inappropriate/inadequate treatment, financial barriers, fear, biological factors, obesity, and patient education.

**Insurance.** A key factor in access to diagnostic and treatment for breast cancer is insurance coverage. That is, insurance coverage may reduce or eliminate financial barriers to preventive care, follow-up, and treatment for breast cancer. However, it is important to recognize that insurance coverage, alone, is inadequate for helping African



American women transcend disparities in breast cancer outcomes (Daly & Olopade, 2015). For example, Hoffman et al. (2011) examined the relationship between insurance coverage and time to diagnosis among women with and without government and private insurance. The researchers reported that the time to diagnosis among White women with government insurance was 12 days; for African American women, the time was 39 days. The discrepancy in diagnosis time persisted among women with private insurance coverage, with the average times of 16 and 27 days for White and African women, respectively. Thus, although the lack of insurance can be a barrier that contributes to racial discrepancies in cancer outcomes, having insurance does not protect African American women against a number of other (non-financial and financial) barriers.

**Mammograms.** Regular mammograms are a key to preventive care, as they may increase early detection and help ensure individuals receive treatment before the disease advances. Research indicates that although White and African American women report similar rates of annual mammogram screening (DeSantis, Naishadham, & Jemal, 2013), African American women are less likely to be diagnosed at early stages of breast cancer than White women are (Daly & Olopade, 2015). The cause of this discrepancy may be poorer quality screenings and less follow-up for abnormal results among African American women (Ansel et al., 2009). In a study on the quality and capacity of mammogram screenings, Ansel et al. (2009) found that imaging facilities that served predominantly minority women were less likely to be private or academic institutions, less likely to have trained breast imaging specialists who read results, and less likely to have digital mammography equipment. Consequently, facilities that serve more minority

women may be less likely to have specialists and technology to more effectively identify abnormal results.

**Follow-up care.** It is also likely that the racial disparity in breast cancer mortality is related to follow-up care. Specifically, racial discrepancies exist in the timeliness of follow-up for abnormal mammogram results. For example, Press, Carrasquillo, Sciacca, and Giardina (2008) examined data from a large cohort of 6,722 women with abnormal mammogram results and found that times for diagnostic follow-up were longer for African American women than White women; White women received follow-up within 14 days, while African American women received follow-up after 20 days.

In addition, African American breast cancer survivors are less likely to receive follow-up monitoring and care than White women (Advani et al., 2013; Keating et al., 2006). Because the rate of breast cancer mortality in African American women is 42% higher than that of White women, poor adherence to follow-up care regimens among this population is of particular concern (Cancer Facts and Figures for African Americans, 2013; Palmer et al., 2015). The National Comprehensive Cancer Network (2014) urges follow-up care and monitoring for women who have received breast cancer treatment. Follow-up care is recommended to detect new and recurrent cancers, evaluate treatment effects, and provide cancer patients with the physical and psychosocial support needed (Palmer et al., 2015).

Ongoing care and treatment for breast cancer patients includes physical exams, mammograms, pelvic exams, care coordination, and patient education (Palmer et al., 2015). Despite the importance of follow-up care for breast cancer patients, research

indicates that breast cancer survivors are less likely to receive follow-up care and mammograms than women without a history of breast cancer (Corkum, Hayden, Kephart, Urquhart, Schlievert, & Porter, 2013; Keating, Landrum, Guadagnoli, Winer, & Zyanian, 2006). According to Palmer et al. (2015), “Failure to receive follow-up care may contribute to delayed diagnosis and treatment of cancer or other comorbidities, reduced quality of life, and increased risk of disease and death” (p. 2).

**Treatment delays.** In addition to the follow-up delays evident for African American women with abnormal mammograms (Press et al., 2008), African American women are more likely to experience delays in getting treatment than White women are. For example, Silber et al. (2013) examined SEER-Medicare data and found that the average time from diagnosis to treatment was 22.5 days for White women, and 29.2 days for African American women. Similar delays were reported by Gwyn et al. (2004), who found that a delay of 3 months or more in the initiation of breast cancer treatment occurred among 22.4% of African American women, while delays of similar length were only evident among 14.3% of White women.

**Inappropriate or inadequate treatment.** Another cause of the racial disparity in breast cancer outcomes may relate to misuse of treatments. Research indicates that African American women are significantly (40%) more likely to receive breast cancer treatment that does not meet best practice guidelines set forth by the National Comprehensive Cancer Network (Daly & Olopade, 2015). African American women are also more likely than White women to receive treatments that are not adequately aggressive, such as inadequate chemotherapy dosage or the lack of aggressive surgical

procedures (Daly & Olopade, 2015). This may be the result of access to subpar treatment facilities that possess less advanced technology or healthcare workers with lower levels of skill.

**Financial barriers.** Costs associated with cancer care may create significant barriers to follow-up care (Palmer et al., 2015; Yabroff, Lund, Kepka, & Mariotto, 2014). Even after treatment is over, cancer survivors are often impacted financially (Yabroff et al., 2014). For example, Ramsey et al. (2013) found that cancer survivors are two times more likely to file bankruptcy than were individuals without a history of cancer. Research indicates that as many as 20% of cancer survivors forgo follow-up care because of associated costs, and that minority patients are most likely to forego care because of financial barriers (Kent et al., 2013; Weaver, Rowland, Bellizzi, & Aziz, 2010).

The financial barriers to care may disproportionately affect African American women. Palmer et al. (2015) conducted a cross-sectional study of 191 women who had been treated for breast cancer to examine perceived barriers to follow-up care among African American and White women. Data were collected via survey items from the Behavioral Risk Factor Surveillance System. Most (61.8%) participants reported at least one barrier to follow-up care, but African Americans were most likely to report cost-related barriers. While just 58.1% of White respondents perceived cost-related barriers, 80.6% of African American respondents reported such barriers. The financial barriers reported by African American respondents included high out-of-pocket costs, transportation to doctor's offices, and the inability to cover other costs associated with care. Analysis revealed that African American respondents were 2.92 times more likely

to report financial barriers to follow-up care than were White respondents. Even after controlling for clinical characteristics, race, and sociodemographic characteristics, Palmer et al. found that African American women were more likely to report cost-related care barriers. Thus, even when there were no significant differences in financial barriers between African American and White respondents, African Americans were more likely to perceive and report cost-related barriers.

**Fear.** Another important barrier to follow-up care, especially among breast cancer survivors, is fear. The racial disparity in perceptions of cost-related barriers reported by Palmer et al. (2015) may have actually been related to higher levels of fear and anxiety among African American women related to follow-up care. Research reveals that cancer survivors often experience fear and anxiety related to concerns over the possible detection of new or recurrent cancers, which can prevent them from accessing follow-up care (Hays, Bjorner, Revicki, Spritzer, & Cella, 2009). Additionally, researchers have reported that African American women are less likely to receive breast cancer screenings because of fear, anxiety, and denial (Peek, Sayad, & Markwardt, 2008). Thus, fears may create barriers to preventive care among women with a history of breast cancer, as well as those with no history.

**Biology.** Despite many factors that might contribute to racial disparities in cancer outcomes, including mistrust of healthcare organizations (Boulware et al., 2016) and unequal access to medical services (Elopre et al., 2017), the biological basis for cancer is also recognized as a contributor to racial differences in survival rates. Specifically, researchers identified biomarkers that made specific individuals more receptive to

antitumor effects of cancer inhibitors. Such research suggested that even with equitable medical treatments, outcomes among individuals might vary depending on their biological receptiveness to treatment. For example, African American women are more likely to be diagnosed with triple-negative breast cancers (TNBC; Iqbal et al., 2015; Perez et al., 2013), and experience greater dysregulation of cell-cycle genes and lower expression of cell-adhesion genes (Grunda et al., 2012).

Keenan et al. (2015) analyzed data from the Cancer Genome Atlas for the years 1988 through 2013 to examine racial distribution of genotypic traits of breast cancer and better understand how biological factors contributed to the racial disparities in the recurrence of breast cancer. Only White and African American women were included in the dataset. The genotypic traits of interest included tumor-specific somatic mutations, subclonal intratumor genetic heterogeneity, and gene expression profiles. Results indicated that African American women experienced a higher prevalence of TNBC, greater intratumor genetic heterogeneity, more TP53 mutations, more PAM50 basal tumors, and more TNBC basal-like 1 and mesenchymal stem-like tumors. TNBC is an aggressive type of cancer that disproportionately affects individuals who carry the BRCA1 mutation and those of African American descent (Dietze, Sistrunk, MirandaCarboni, O'Regan, & Seewaldt, 2015). These findings suggested that African American women are prone to more aggressive breast cancer than White women. Aligned with these findings, Keenan et al. found that African American women experience significantly higher rates of cancer recurrence than White women. These

findings indicate that biology is at least partially related to the racial disparities in breast cancer outcomes observed between White and African American women.

While findings from Keenan et al.'s (2015) study indicated that African American women are more biologically predisposed to aggressive breast cancers than White women, the reasons for this biological disparity is unclear. Keenan et al. explained that it is unknown whether the biological disparities are related to higher levels of genomic instability or greater exposure to factors, such as environmental agents, which may contribute to DNA damage that results in genomic instability. This lack of conclusiveness regarding biological factors in breast cancer expression has been reported by other researchers (Carey et al., 2006). Regardless of the cause of the biological differences, the researchers explained, "greater genomic diversity within African American tumors suggests a greater capacity for clonal evolution that may contribute to aggressive or therapy-resistant disease" (p. 3625). The researchers concluded that additional research was needed to better understand the relationship between racial disparities in breast cancer outcomes and tumor genomics.

Dietze et al. (2015) also examined biological factors related to the racial disparities in breast cancer outcomes. The researchers focused on the reasons for the increased risk of TNBC among African American women, which is associated with high rates of metastasis to the brain, liver, and lungs, and poor rates of survival (Dietze et al., 2015). A meta-analysis of existing research indicated that while African American women are more likely to carry the BRCA1 mutation that increases risks for TNBC, the pathways that promote this increased risk or mutation are unknown; research indicates a

mixture of biological and environmental factors may be at play. The potential biological and environmental factors presented by Dietze et al. included environmental exposure to risk factors in utero, during puberty, and during pregnancy, as well as living in unsafe neighborhoods, high levels of stress, and exposure to toxic wastes.

**Obesity.** Another cause of the racial disparity in breast cancer incidence and outcomes may relate to obesity. Research indicates that obesity is related to increased risk for certain types of breast cancer. For example, findings from the Carolina Breast Cancer Study revealed that an increased risk of TNBC was associated with higher body mass index and hip-to-waist ratios. “Because there is a higher incidence of obesity in African American women and obesity predicts poor survival, it is hypothesized that obesity is a potential driver of aggressive TNBC biology in African American women” (Dietze et al., 2015, p. 8). In recent years, obesity among African American women has increased substantially – from 39% in 1999 to 58% in 2012 (Fedewa, Sauer, Siegel, & Jemal, 2015). Obesity can increase risks for postmenopausal breast cancer (Bandera et al., 2015).

**Patient education.** Insufficient patient education and provider communication may also contribute to disparities in breast cancer outcomes. For example, in a study of racial discrepancies in perceptions of adequate health-related information among breast cancer patients, Janz, Mujahid, Hawley, Griggs, and Hamilton (2008) found that African American women were more likely to express unmet needs for information. Hawley, Fagerlin, Janz, and Katz (2008) examined knowledge of breast cancer treatment among breast cancer patients and found that minority women were less likely to possess



adequate knowledge about survival and recurrence than White women. The authors posited that the reason for this discrepancy may be the lack of culturally-competent communication and information provided to minority patients. Daly and Olopade (2015) argued that improving patient education and provider communication may help to improve care provided to breast cancer patients and reduce disparities in care and outcomes. Ensuring that patients possess adequate knowledge of their diagnosis and treatment options may remove care barriers, empower them to become knowledgeable about their health, and provide them with support throughout their treatment journeys (Daly & Olopade, 2015).

### **Reform**

While the aforementioned factors can certainly contribute to the racial disparities in breast cancer outcomes, it is important to note that some researchers have found that discrepancies persist even after controlling for differences in treatment conditions and socioeconomic status (Parise & Caggiano, 2013; Smith, Ziogas, & Anton-Culver, 2013; Tannenbaum et al., 2013). Thus, reform to the current system of cancer care is needed to address and eliminate the disparities in breast cancer outcomes discussed. In addition to providing more patients with access to coverage, an important aim of the ACA is to improve patient health, increase the quality of care provided, and reduce out-of-pocket healthcare costs. As Daly and Olopade (2015) explained, an essential part of reform associated with the ACA is accountable care organizations (ACOs). The scholars explained, “ACOs could potentially assist in closing the racial mortality gap because groups of providers will take responsibility for improving the health of a defined

population and will be held accountable for the quality of care delivered” (p. 234). ACOs involve networks of healthcare providers tasked with evaluating the value, quality, and delivery of diagnostic and therapeutic care provided to patients – especially related to cancer care. Through ACOs, care providers will be held accountable for the care provided to patients, including “delays, misuse, and underuse of treatment “(Daly & Olopade, 2015, p. 234).

Certainly, expanding healthcare coverage, alone, is inadequate for reducing the racial disparities in care quality and outcomes. As indicated by research discussed in this review, even when African Americans are covered by insurance, disparities exist in their use of preventive screening, the quality of care they receive, the timeliness of treatment, their access to treatments, and the effectiveness of interventions they are provided with. Thus, expanding healthcare coverage to more minorities, via the ACA, is an important first step in achieving equality in care and outcomes, but there are other important factors that must be addressed as well.

Chin et al. (2012) analyzed 12 systematic reviews on best practices for reducing racial disparities evident in healthcare. The scholars found that the interventions with the most potential for reducing racial disparities were those that are “culturally tailored to meet patients’ needs, employ multidisciplinary teams of care providers, and target multiple leverage points along a patient’s pathway of care” (p. 992). Based on their extensive meta-analysis, Chin et al. developed the following six-step *roadmap* of best practices that may help to reduce racial disparities in healthcare:

1. Recognize the existence of racial and ethnic disparities and commit to reducing them. In order to address the disparities, healthcare systems and providers must first acknowledge that inequities exist. Data that indicate the presence of these disparities are readily available to providers and organizations through the stratified collection of data provided by the ACA.
2. Implement a process for quality improvement. As Chin et al. explained, “Interventions to reduce disparities will not get very far unless there is a basic quality improvement structure and process upon which to build the interventions” (p. 994). Essential components of quality improvement processes are an organizational culture that values quality, a team devoted to ensuring quality improvement, a process to improve care quality, goal setting and analytics to measure progress toward quality improvement, and support from leaders and managers.
3. Ensure that equity is an essential component of quality improvement efforts. Chin et al. found that effective healthcare interventions are those that combine the idea of quality improvement with the goal of reducing racial and ethnic disparities. The scholars explained that these two factors are often considered in silos, but these two goals should be considered together when developing improvement interventions. As they explained, “We need to think about the needs of the vulnerable patients we serve as we design interventions to improve care in our organizations, and address those needs as part of every quality improvement initiative” (p. 994).

4. Design interventions. Interventions should be tailored to contexts, patient populations, and organizational climates. An intervention designed to improve care quality and reduce racial disparities among African American women with breast cancer, living in the southeastern United States, will be different from an intervention designed to reduce disparities among Hispanic men with testicular cancer living in the southwestern United States.
5. Implement, evaluate, and adjust interventions as necessary. Once an intervention is designed, it must be implemented and then continually evaluated in order to identify where improvements are needed.
6. Sustain the interventions. The final step recommended by Chin et al. for improving racial equality in healthcare involves sustaining interventions by ensuring the buy-in and cooperation of stakeholders and the provision of adequate financial resources. Some strategies for sustaining interventions include performance pay, incentives and reimbursements for team care, and incentives that connect the healthcare system with the larger community.

Chin et al.'s (2012) analysis provides valuable recommendations for reducing racial and ethnic disparities in care outcomes that organizations and providers can use. The first step to addressing this problem is, no doubt, eliminating barriers related to finances and access. Once those barriers have been addressed, healthcare organizations and providers must work to ensure other systematic barriers to care are eliminated for minorities, while improving the overall quality of care provided to all patients. The researchers found that the most effective interventions for reducing racial disparities were

those that were culturally tailored and provided patients with a personal team of healthcare providers. Patient education was an essential component of effective interventions, and the researchers noted that interactive educational interventions were far more effective than those that relied on passive learning. The fundamental component of effective educational interventions was prompting behavioral changes.

It is clear that reducing financial and access barriers, alone, will not eliminate the inequalities evident in the U.S. healthcare system. As Adepoju, Preston, and Gonzales pointed out in their 2015 analysis of post-ACA disparities, a *wide chasm* in healthcare quality, access, and outcomes is still present.

### **Effects of ACA**

In addition to providing more individuals with healthcare coverage, a main goal of the ACA was to reduce out-of-pocket costs for preventive services. For example, before enactment of the ACA, Medicare beneficiaries were responsible for 20% coinsurance for mammograms and 25% coinsurance for colonoscopies. After the ACA was enacted, coinsurance and deductibles for those screening services were eliminated (Cooper et al., 2017). The elimination of these costs is part of the Act's preventive services provision (PSP; Silva, Molina, Hunt, Markossian, & Saiyed, 2017). Under the PSP, insurance plans may not charge deductibles, co-pays, or co-insurance for preventive services recommended by the U.S. Preventive Services Task Force, the American Academy of Pediatrics Bright Futures Guidelines, and the Advisory Committee on Immunization Practices (Karliner et al., 2016).

Researchers have posited that the ACA has the potential to significantly reduce racial disparities in care access and outcomes, via the expansion of insurance coverage, improved access to high-quality care, and increased utilization of preventive services (Chen et al., 2016; Henry J. Kaiser Family Foundation, 2013). Blumenthal and Collins' (2014) analysis of the ACA indicated that in just three years, the ACA had resulted in the coverage of 20 million Americans. Although the researchers acknowledged that it was unclear as to how many of those 20 million Americans were previously uninsured, they concluded that it "seems certain that many were" (p. 280). While data indicate that the gap between the insured and uninsured has narrowed among some groups since enactment of the ACA, troubling gaps remain among some populations, such as minority women (Karliner et al., 2016; McMorrow et al., 2015).

As Karliner et al. (2016) explained, the ACA's support of patient-centered medical homes (PCMH), a primary care model that is particularly beneficial for minority women, may be another route through which the ACA results in improved health outcomes for African American women. This model of care "has the potential to transform the organization and delivery of primary care services and to redress longstanding inequities in access to quality care for minority women" (Karliner et al., 2016, p. 393). The PCMH is characterized by the following attributes: (a) patientcentered care, (b) coordination, (c) access to services, (d) comprehensive care, and (e) a systems-based approach to patient safety and care quality (Karliner et al., 2016). Karliner et al. (2016) conducted a case study investigation to examine the effect of PCMHs, under the ACA, on health disparities among minority women. The researchers used three cases,

one for each of the following health conditions: breast cancer, HIV, and coronary heart disease. The authors reviewed existing studies and data and concluded that the ACA shows promise for reducing racial disparities in outcomes for breast cancer, HIV, and heart disease *if* the improved access to care is linked with comprehensive, systematic, and coordinated care. The researchers argued that the PCMH model may be a way to improve these facets and reduce healthcare disparities that seem to persist even after access to coverage is controlled for.

Although fairly new, researchers have already begun to examine the effects of the ACA on patient care and disparities in patient outcomes. To date, conflicting findings have been reported regarding the effects of the ACA on the use of preventive screening services (Fedewa et al., 2015; Hamman & Kapinos, 2015; Jensen, Salloum, Hu, Baghban Ferdows, & Tarraf, 2015; Nelson, Weerasinghe, Wang, & Grunkemeier, 2015; Sabik & Adunlin, 2017; Wharam, Zhang, Landon, LeCates, Soumerai, & Ross-Degnan, 2016). For example, Sabik and Adunlin (2017) conducted a meta-analysis of quantitative investigations published after enactment of the ACA to examine whether changes in access to preventive services had occurred. A significant limitation of the studies they examined was the short period of time for which data had been collected. Because the ACA was only enacted in 2010, and the expansion of insurance coverage is slowly increasing, it is difficult to know exactly what effects the Act has had on care outcomes. Thus, findings from such studies must be interpreted with care, as Sabik and Adunlin cautioned. With that limitation acknowledged, the researchers reported that the ACA has appeared to significantly decrease uninsurance and improve healthcare access; however,

findings on the effects of the ACA, in terms of accessing cancer screening services were mixed. Indeed, other researchers have reported that the use of preventive care services remains a persistent barrier to reducing disparities in health outcomes, as well as the burden of chronic disease in the United States (Adepoju et al., 2015).

Despite the conflicting findings reviewed by Sabik and Adunlin (2017), the researchers were able to conclude that the groups most affected by increased preventive screening after the ACA included low-income and poorly educated groups. Thus, it appears that important populations targeted by the ACA (i.e., low-income individuals) may be benefitting the most from increased use of cancer screening services – access to which has been made possible through the ACA. However, the researchers acknowledged that the ACA has not effectively removed all barriers to preventive services, such as provider availability and health awareness. This statement aligned with Adepoju et al.'s (2015) analysis of the effects of the ACA on health disparities, which posited that the removal of financial and access barriers was not enough to improve uptake of preventive services; patients must also understand their insurance benefits (i.e., that preventive services may be accessed at no cost) and possess awareness of the importance of utilizing preventive services. Adepoju et al. argued that addressing such knowledge gaps “is paramount for eliminating disparities in preventive health services utilization, and providers will play a critical role toward achieving the goal that all patients receive age-appropriate preventive health services” (p. S5). To address such nonfinancial barriers, Sabik and Adunlin suggested that insurance coverage reforms must be aligned with prevention and public health efforts. An additional and important



limitation of this study was the researchers' failure to examine racial variations in changes in use of preventive screening services (Sabik & Adunlin, 2017).

In another study on the effects of the ACA on socioeconomic disparities in care, Griffith, Evans, and Bor (2017) analyzed data from the Behavioral Risk Factor Surveillance System for the years 2011 through 2015 to examine changes in insurance coverage, having a doctor, and cost-related aversions to accessing healthcare. Findings revealed that access to care increased among individuals of low socioeconomic status, regardless of whether or not they resided in states that expanded Medicaid eligibility under the ACA. The gap in insurance coverage between households with an annual income lower than \$25,000 and those over \$75,000 fell 31% to 17% in states that offered expanded Medicaid eligibility. In states that did not offer this expansion, the uninsured gap dropped from 36% to 28%. Griffith et al. concluded that findings indicated socioeconomic disparities in access to healthcare had dropped as a result of the ACA.

However, like Sabik and Adunlin (2017), Griffith et al. did not examine racial variations.

Other researchers (Adenpoju et al., 2015) pointed out the effects of some states' failure to expand Medicaid under the ACA, noting that just in Florida and Texas, nearly 3 million low-income adults remain without coverage because Medicaid was not expanded. The 2012 Supreme Court ruling in *National Federation of Independent Business v. Sebelius* gave states the power to decide whether or not to expand Medicaid coverage under the ACA. As of 2015, just 28 states and the District of Columbia had expanded Medicaid. The failure of many other states to follow suit has resulted in a coverage gap

among individuals living below the poverty line. As McMorrow et al. (2015) explained, this gap among the impoverished has occurred because those living below the federal poverty level cannot receive subsidies to purchase insurance through the Marketplace; subsidies are only available to individuals with annual incomes of 100% to 400% of the poverty level. Consequently, many poor adults remain without coverage. The failure to implement Medicaid expansion under the ACA has disproportionately affected African Americans. McMorrow et al. (date) estimated that if Medicaid expansion had occurred throughout all states, about 1.4 million more African Americans would have health insurance. In a similar analysis, Buchmueller, Levinson, Levy, and Wolfe (2016) argued that further reduction of racial disparities would require more states to expand Medicaid under the ACA.

While it may seem logical that Medicaid expansion would help to reduce healthcare disparities, it is important to highlight previously discussed scholarship that indicated inequalities in care provided to individuals with government insurance versus those with private insurance (Walker et al., 2014). Under Medicaid, individuals are less likely to receive effective and timely treatments, which can contribute to racial disparities in health outcomes. Thus, it is important to acknowledge that other systemic barriers to care must also be addressed to reduce persistent health disparities among African Americans.

One of the arguments behind assumptions that expanding insurance coverage to more people will result in improve care outcomes is that uninsured women are less likely to use preventive services such as mammograms (Salganicoff et al., 2014). Thus, some

researchers argue that expansion of insurance under the ACA should result in a reduction of race-related healthcare disparities (Hayes et al., 2015; Marino et al., 2016). In addition, the ACA was designed to remove barriers to care among those who are insured, such as pre-existing conditions, higher rates based on gender, and annual and lifetime limits to coverage (Karliner et al., 2016). While some of the aspects of the ACA – such as eliminating pre-existing conditions – may benefit all socioeconomic groups, “key features of the law sought increase coverage among lower-income people specifically” (Griffith et al., 2017, p. 1503).

Cooper et al. (2017) examined the effect of the ACA on the use of two forms of preventive services (mammograms and colonoscopies) using a 5% random sample of Medicare beneficiaries who were 70 years and older. Among the mammogram sample, the scholars noted an increase in mammograms, as well as a decrease in the socioeconomic gap associated with mammography uptake. Thus, it appeared that the reduction or elimination of expenditures associated with mammograms increased mammogram screening across socioeconomic strata. However, uptake of colonoscopy did not increase significantly, nor was a reduction in disparities across socioeconomic strata observed (Cooper et al., 2017).

In another study, Silva et al. (2017) explored whether enactment of the ACA was associated with changes in stage of initial breast cancer diagnosis, and whether any changes in racial disparities were evident. The researchers culled data from the National Cancer Data Base for two periods: (a) a pre-ACA period from 2007 to 2009 and (b) a post-ACA period from 2011 to 2013. Logistic regression revealed that overall, an

increase in early-stage breast cancer diagnosis occurred after enactment of the ACA. Although African American and Hispanic women experienced a slightly higher increase in early-stage diagnoses, racial disparities were not significantly changed; thus, racial disparities in early-stage diagnoses remained statistically significant. The researchers concluded with a call for further research “to explore persistent post-ACA factors (e.g., navigating a new complex healthcare environment) that disproportionately impact minority women” (p. 4).

While Silva et al.’s (2017) study provided a snapshot that revealed a positive effect of the ACA on early-stage breast cancer diagnoses, the study was significantly limited in terms of the time periods that were analyzed. It is important to note that postACA data were only integrated for a 3-year period. In addition, although the findings are optimistic regarding the apparent increase in early-stage diagnoses, the authors found no significant changes in racial discrepancies. In addition, this study only addressed rates of early-stage diagnosis – racial discrepancies in the long-term morbidity rates were not addressed. This represents an important gap that was addressed by the current investigation (Silva et al., 2017).

Another positive effect of the ACA may be an increase in transplant listings for minorities. For example, Breathett et al. (2017) investigated how the ACA Medicaid Expansion affected heart transplant listings for racial minorities. The researchers pulled data from the Scientific Registry of Transplant Recipients, which included information on 5,651 patients from early adopter states (that is, states that had implemented the ACA and

Medicaid expansion by 2014) and 4,769 patients from states that had not implemented Medicaid expansion for the study period, which was from 2012 to 2015. Analysis revealed a 30% increase in heart transplant listings for African Americans in early adopter states, while no significant change in transplant listings among the population was indicated in states without Medicaid expansion. The scholars concluded Medicaid expansion under the ACA was associated with an increase in heart transplant listings for African Americans, and that expanding the ACA in states with large populations of African Americans may reduce disparities in rates of transplant listings.

### **Summary**

An extensive review of recent literature related to breast cancer outcomes among African American women reveals significant room for improvement, in terms of persistent racial disparities in care and outcomes. The review revealed that while financial barriers (out-of-pocket expenses and lack of insurance) may certainly contribute to the racial disparities in breast cancer outcomes, a bevy of other nonfinancial barriers exist. Those common barriers were discussed, including mammogram uptake, treatment delays, follow-up care, inappropriate/inadequate treatment, fear, biological factors, obesity, and patient education. These represent important obstacles that the ACA does not specifically address.

As for changes in cancer outcomes in the wake of the ACA's implementation, existing research seems to focus on rates of preventive service utilization. The small body of available literature on the effects of the ACA on racial discrepancies in mammogram screening rates is conflicting. Further, a gap was identified pertaining to

how the ACA implementation has affected breast cancer survival rates among African American women. Thus, the current research addressed this important gap in the current research by exploring the relationship between implementation of the ACA and 5-year breast cancer survival rates, with a specific focus on rate disparities between African American and White women.

### **Definitions**

*Access:* Access describes “the degree of ‘fit’ between the clients and the system” (Penchansky & Thomas, 1981, p. 128).

*Healthcare disparities:* Difference in healthcare outcomes between African American and White Americans (DeSantis et al., 2016). Disparities are also defined as health differences that are not related to health status (Smedley, Stith, & Nelson, 2003).

### **Assumptions**

Assumptions are elements of an investigation that a researcher must assume as true in order to conduct an investigation. There were assumptions inherent to the current study. First, the researcher assumed that data collected between 2010 and 2015 accurately reflected the effects of changes made by the ACA on healthcare in the United States. It was assumed that changes in healthcare law meant to improve equal access to healthcare translated into rapid shifts in public access to healthcare services. Importantly, the researcher assumed that data were accurately entered into the SEER database, and the database actually contained the information of which it claimed.

### **Scope and Delimitations**

The scope of the study was bound by delimiting factors. First, the scope of the study was limited to an investigation of breast cancer survival rates among African American and White women. The integration of data for other groups (such as Hispanics and Asians) may provide additional valuable data; however, the focus of the current research was limited to the disparities between African Americans and Whites. In addition, only data for the years 2010 through 2015 were pulled. Because the ACA was enacted in 2010, this range of years may reveal longitudinal changes in breast cancer survival rates over the 6-year period for which data were available, post-ACA. Additional delimitations of this study included the researcher's decisions regarding study design and theoretical framework.

### **Limitations**

Although the current study was useful for identifying differences between enactment of the ACA and healthcare disparities in breast cancer outcomes between African American and White women, it was limited to only 6 years of available data since the enactment of the ACA. Results cannot be used to establish causal links.

### **Significance, Summary, and Conclusions**

Research indicates that African American women experience higher breast cancer mortality rates than White women at all stages of cancer diagnosis (Mandelblatt et al., 2013). Prior to the ACA, this disparity may have related to unequal access to specific, high-quality treatment among African American women (DeSanctis et al., 2016). While a number of factors can contribute to the racial disparities in breast cancer outcomes,

discrepancies persist even after controlling for differences in treatment conditions and socioeconomic status (Parise & Caggiano, 2013; Smith et al.; Tannenbaum et al., 2013).

Researchers have examined African American/White disparities in breast cancer outcomes, as related to insurance status, mammogram uptake, treatment delays, followup care, inappropriate/inadequate treatment, financial barriers, fear, biological factors, obesity, and patient education. Research also exists on historical disparities in breast cancer survival, with evidence that African American women are 42% more likely to die from breast cancer than White women. However, research is lacking on how implementation of the ACA has affected, if at all, the African American/White disparity in breast cancer survival. Accordingly, the aim of this study was to examine the differences between implementation of the ACA and 5-year breast cancer survival rates, with a specific focus on survival rate disparities between African American and White women. Findings from this research indicated whether additional improvements to the healthcare system are needed in order to reduce racial disparities in breast cancer survival. This study also provided important information needed to examine race-based trends in changes to breast cancer mortality.

This section provided an introduction to the current research, including the research problem, study purpose, research questions, and theoretical foundation. This section also included a comprehensive review of existing literature related to the ACA, health outcomes, and racial disparities in breast cancer outcomes. Importantly, the literature review exposed a significant gap in the current body of knowledge that was addressed in the current investigation. Key terms, assumptions, and delimitations were



also presented. The following section contains details of the current study's method and design, including information regarding the population, sample, instrumentation, data collection and analysis, assurances of validity, and ethical procedures.

## Section 2: Research Design and Data Collection

### **Introduction**

For African American women diagnosed with breast cancer between 2006 and 2012, the average 5-year survival rate was 82%; among White women, the survival rate was 92% (American Cancer Society, 2017; Howlader et al., 2016). While behavioral and biological differences affect breast cancer survival rates (Keenan et al., 2015), the persistent racial disparity in breast cancer mortality indicates that nonbiological factors, such as care quality and access, may account for racial differences in breast cancer survival (Mandelblatt et al., 2013). This purpose of this quantitative comparative study was to examine the differences between implementation of the ACA and disparities in the 5-year breast cancer survival rates between African American and White women.

This section includes details of the current study's method and design. I begin with a discussion of the research design and rationale. Methodological details are then presented, including details of the study's population, sample, sampling procedures, instrumentation, and operationalization of constructs. The data analysis plan is detailed, followed by a discussion of validity and ethical assurances. I close the section with a brief summary.

## **Research Design and Rationale**

The nature of this study was quantitative, and it followed a retrospective design using cohort data from the SEER Program (NIH, 2018). The independent variable was African American women and White women who were survivors of breast cancer after the ACA implementation for the 6 years examined. The dependent variable was breast cancer survival rates after the ACA implementation for the 6 years examined. The study followed a cohort design, which involves observational investigations that use longitudinal data to examine the progression of phenomena (Hoe & Hoare, 2012). This type of design was in direct alignment with the aim of the current investigation, which was to examine changes in racial discrepancies of breast cancer survival rates that occurred in the years following ACA implementation.

Cohort studies are often used to explore disease trends in health research. Researchers have used cohort designs to advance knowledge related to breast cancer incidence and survival. For example, Phillips et al. (2018) conducted a study using cohort data to examine risk for BRCA1 and BRCA2 breast cancer mutations in association with tamoxifen use. Conant et al. (2016) used a cohort design to examine whether digital breast tomosynthesis was associated with improved screening outcomes after the detection of breast tumors. In another study, Bhaskaran et al. (2014) analyzed data from a cohort of over 5 million adults to explore the relationships among body mass index and the incidence of several cancers, including breast cancer. Åkerstedt et al. (2015) used cohort data to investigate the relationship between nightshift work and breast cancer incidence among a sample of Swedish women. Based on my review of breast

cancer research, it is evident that cohort studies are regularly used to advance knowledge related to breast cancer incidence and survival in a variety of contexts.

Longitudinal data, consisting of breast cancer survival and incidence data for the years 2010 through 2015 were pulled from the SEER database (NIH, 2018) for this investigation. Accordingly, the study was limited to data available in this database, and I assumed that the SEER database was accurate and complete. Although information in this database goes back many years, the scope of the current investigation was limited to the years following ACA implementation. Accordingly, data included in the investigation were limited to those gathered between the years of 2010 and 2015. The year 2015 is the most recent year for which complete data were available. Thus, study data included information on breast cancer incidence and 5-year survival rates for the years 2010 through 2015. Five-year survival was defined as individuals who survived breast cancer for at least 5 years, following their date of diagnosis, for each of the years examined.

## **Methodology**

### **Population**

The study population consisted of the estimated 2.3 million African American and White women who were newly diagnosed with breast cancer between 2005 and 2010 (ACS, 2017).

### **Sampling and Sampling Procedures**

The study sample consisted of all African American and White women newly diagnosed with breast cancer between 2010 and 2015 for whom data were available in the SEER database. SEER is part of the Surveillance Research Program in the National Cancer Institute's Division of Cancer Control and Population Sciences. The Surveillance Research Program conducts nationwide cancer surveillance, employing analytical tools and methodological expertise to collect, analyze, interpret, and disseminate reliable population-based cancer statistics (SEER, 2018a). The SEER database is available to the public, via the NIH website for the National Cancer Institute. The inclusion criteria were as follows: (a) women, (b) newly diagnosed with malignant breast cancer between January 2010 and December 2015, (c) between the ages of 18 and 65, and (d) identified as African American or White ethnicity. Outliers and records that are not hospital-based were excluded from the dataset. Deaths from all causes were included.

There is a need to sample from an adequate pool of participants to establish statistical validity of the findings. A *z*-test of proportions was inputted into G\*Power 3.1.7, a power analysis calculator (see Faul, Erdfelder, Buchner, & Lang, 2014). Using the conventional parameters – a power of .80 and a significant alpha level of .05 – it was calculated that a minimum of 1800 women should be sampled (900 White and 900 African American). Because I used secondary archival data, there were no problems achieving this minimum sample size. Available data for the entire population were used.

### **Instrumentation**

A data collection instrument was not necessary for the current research, as I used existing, archival data. Thus, the instrument was essentially the SEER database. No permissions were required to access and use these data, as the SEER database is publicly available. Many past researchers have leveraged data from the SEER database to conduct breast cancer research. For example, Henson et al. (2016) examined SEER data to investigate the effects of breast cancer treatment. In another study, Brown, Shao, Jatoli, Shriver, and Zhu (2016) examined racial trends in mastectomy among breast cancer patients using SEER data. The SEER database was also leveraged by Petkov et al. (2016), who investigated breast cancer mortality related to the 21-gene recurrence score.

### **Operationalization of Constructs**

**Breast cancer 5-year survival rate 2015.** Breast cancer 5-year survival rate refers to women newly diagnosed with breast cancer between January 2005 and December 2010 and remained alive for 60 months after initial diagnosis (Tai et al., 2005).

**Breast cancer survival rate gap.** The breast cancer survival gap was calculated as White women's breast cancer 5-year survival rate minus African American women's breast cancer 5-year survival rate.

**Breast cancer incidence.** Breast cancer incidence was defined as the risk of a breast cancer diagnosis during a particular year, expressed as the number of new cases per 100,000 individuals (Noone, Howlader, Krapcho, Miller, Brest, and Cronin, 2017).

**Breast cancer incidence gap.** The gap in breast cancer incidence was defined as the difference in breast cancer incidence between African American and White women, for a particular year (Noone et al., 2017).

**Ethnicity.** The SEER database includes categorical data for ethnicity included in the patient record, which was adopted for this study. The Centers for Disease Control and Prevention (CDC) collects and reports ethnicity data for White, African American, Hispanic, and other (Noone et al., 2017).

### **Data Analysis Plan**

Data from the SEER database were downloaded and extracted into SPSS version 24.0 for Windows. Data were screened for missing cells, and only cases with complete data for the three variables of interest were included. The following research question and hypotheses were addressed:

RQ1: Do differences exist in the 5-year breast cancer survival rate between African American and White women after enactment of the ACA?

H<sub>0</sub>1: No significant differences exist in the 5-year breast cancer survival rate between African American and White women after implementation of the ACA.

H<sub>a</sub>1: Significant differences exist in the 5-year breast cancer survival rate between African American and White women after implementation of the ACA

The H<sub>0</sub>1 was tested using an independent samples *t* test for differences in the gap of 5-year survival rates between African American and White women, as shown in table.

Table 1

#### *Statistical Tests for Null Hypotheses*

Hypothesis	Variables	Statistics
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$H_0$ 1. No significant differences exist in the 5-year breast cancer survival rate between African American and White women after implementation of the ACA	Breast cancer 5-year survival rate gap 2010; Breast cancer 5-year survival rate gap 2015; ethnicity	Independent samples $t$ test
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### Threats to Validity

External validity is concerned with the generalizability of study findings to other settings and populations. The study sample included the entire U.S. population for which data were available; therefore, there were no issues related to use of these data in the United States. Study findings cannot be generalized to other countries or subpopulations due to variances associated with healthcare access, socioeconomic differences, and cultural differences. There are potential confounding variables that may impact the relationships established through the inferential analyses. It was not possible to control for the influence of these variables; therefore, findings must be interpreted with a degree of caution.

Internal validity is concerned with the rigor of the study design and variable definitions. A potential threat to internal validity is that while the ACA was enacted in 2010, implementation was a multiyear process, and its effect on health outcomes may be delayed beyond 2015, which is the date of the most recent data from SEER. Breast cancer is well defined and recognized in the literature and is a thoroughly explored disease state. Because I used 100% of the target population (for which data were available), there was no threat to statistical conclusion validity. In addition, there was a threat of potential errors in the archival data set. I assumed that all records were accurate.

### **Ethical Procedures**

Before data collection began, the researcher obtained approval from Walden University's Institutional Review Board (IRB). Because all data in the SEER database are already de-identified and publicly available, no issues related to confidentiality were present. Further, because data were anonymous and retrospective, no possible risks of harm were present for any individuals for which data were included. Because all records used in this investigation were already anonymous as posted in the SEER database, there was no need to address ethical issues related to the use of data with identifying information. All study-related data were stored on the researcher's password-protected computer, to which only she had access. Data will be kept for a period of 5 years, after which time, all study-related data will be destroyed.

### **Summary**

This purpose of this quantitative comparative study was to examine the differences between implementation of the ACA and 5-year breast cancer survival rates, with a specific focus on survival rate disparities between African American and White women. The study followed a quantitative cohort design, which allowed for the examination of the potential influence of the ACA on breast cancer incidence, survival, and disparities present between African American and White women. The researcher utilized secondary data drawn from the SEER database. The breast cancer survival gap refers to the higher survival rate of White women diagnosed with breast cancer relative to African American women. Hypotheses were tested using *t*-tests of proportion. The following section contains a presentation of findings from the analysis.



### Section 3: Presentation of the Results and Findings

#### **Introduction**

Despite the behavioral and biological differences that may affect breast cancer survival rates (Keenan et al., 2015), persistent racial disparities in breast cancer mortality indicate that nonbiological factors may account for racial differences in breast cancer survival rates (Mandelblatt et al., 2013). Researchers have indicated that African American women experience higher breast cancer mortality rates than White women at all stages of cancer diagnosis (Mandelblatt et al., 2013). This disparity may be related to unequal access to specific, high-quality treatment among African American women prior to enactment of the ACA (DeSantis et al., 2016). In this research, I investigated if the racial disparities in breast cancer survival have persisted in the years since the ACA's passage. The purpose of this quantitative comparative study was to examine the differences between implementation of the ACA and 5-year breast cancer survival rates, with a specific focus on survival rate disparities between African American and White women. The research question guiding this study was as follows: Do differences exist in the 5-year breast cancer survival rate between African American and White women after the enactment of the ACA? The associated hypotheses were as follows:

H<sub>0</sub>1: No significant differences exist in the 5-year breast cancer survival rate between African American and White women after the implementation of the ACA.

H<sub>a</sub>1: Significant differences exist in the 5-year breast cancer survival rate between African American and White women after the implementation of the ACA.

I provide a description of the secondary data set and descriptive statistics for the data in this section. The results of the statistical analysis are also presented in this

section. The results presentation addresses the assumptions of the statistical analysis. The relevant statistics are reported to indicate statistical significance, or a lack thereof. I conclude the section with a summary and transition to Section 4.

### **Data Collection of Secondary Data Set**

Secondary data for this study were harvested from the SEER 18 Regs Research Data and Hurricane Katrina Impacted Louisiana Cases, Nov 2017 Sub (1973-2015 varying; SEER, 2018b). The database covered approximately 28% of the United States population and was linked to state-based registries to provide cases, complete with year of diagnosis (SEER, 2018b). These data have been provided from registries that date back to 1973; however, for this research, cases diagnosed between 2010 and 2015 were retained for analysis. This database was selected because it provided consistent year of diagnosis data, which facilitated a screening of cases to filter for diagnosis from 2010 to 2015. Additionally, this database provided information related to length of survival (measured in months).

Following final approval by the Walden University IRB, the data were accessed using the case listing and frequency session function within SEER\*Stat. SEER\*Stat is a proprietary platform provided specifically for the analysis of SEER data. The secondary data set was saved as a text file and imported into IBM SPSS Version 24 for management and analysis. Survival rates for the specific ethnic groups were not provided for the indicated period. The selected database included a survival months variable that was used to calculate a 5-year survival rate for African American and White women. The 5year survival rate was calculated by dividing the number of women alive at 60 months

or more by the total number of breast cancer cases diagnosed between 2010 and 2015. This calculation was conducted for African American women and for White women to provide an overall survival rate for each group (see Mariotto et al., 2014). These overall survival rates were used in the analysis to describe differences in 5-year survival rate. The resulting calculation include a 5-year study that was inclusive of both African American and White women.

The secondary data set contained 379,274 cases. Of those cases, 1,571 cases were missing data for survival months. These cases were eliminated from the data set. The cases were removed because they lacked information related to length of survival, which was a primary variable of interest for this study. The data set was then screened to ensure that only African American and White women were retained in the data set. A total of 2,971 male patients were removed from the dataset. Patients who were American Indian/AK Native and Asian Pacific Islander ( $n = 33,716$ ) and patients whose race was unknown ( $n = 3,087$ ) were also removed from the data set. The final data set consisted of 337,929 cases.

Table 2 presents descriptive statistics for race, year of diagnosis, state, marital status, and age. The majority of patients in the data set were White ( $n = 296,203$ , 87.7%). The number of patients diagnosed did not vary greatly across the period studied; however, more cases were diagnosed in 2015 ( $n = 58,651$ , 17.4%) than in the preceding years. The highest number of cases were reported from the California registry ( $n = 129,189$ , 38.2%). Slightly more than half the patients in the sample were married at diagnosis ( $n = 176,590$ , 52.3%).

**Table 2**

*Descriptive Statistics for Race, Year of Diagnosis, State, and Marital Status at Diagnosis (N = 337,929)*

Variable	N	%	
<b>Race</b>			
African American	41,726	12.3	
White	296,203	87.7	
<b>Year of diagnosis</b>			
2010	53,276	15.8	
2011	55,298	16.4	
2012	56,096	16.6	
2013	56,961	16.9	
2014	57,647	17.1	
2015	58,651	17.4	
<b>State</b>			
California	129,189	38.2	
Connecticut	18,368	5.4	
Georgia	39,895	11.8	
Hawaii	1,911	0.6	
Iowa	13,775	4.1	
Kentucky	19,722	5.8	
Louisiana	19,526	5.8	
Michigan	18,479	5.5	
New Jersey	40,427	12.0	
New Mexico	7,713	2.3	
Utah	8,207	2.4	
Washington	20,717	6.1	
<b>Marital status at diagnosis</b>			
Divorced	37,466	11.1	
Married (including common law)	176,590	52.3	
Separated	3,515	1.0	
Single (never married)	49,844	14.7	
Unknown	19,725	5.8	

Unmarried or domestic partner	965	0.3	
Widowed	49,824	14.7	

### Results

An independent samples  $t$  test was planned to determine if there was a statistically significant difference in the 5-year survival rate between African American and White women. To conduct the independent samples  $t$  test in SPSS, at least two data points was required for each group under analysis. Additionally, without the required minimum number of observations, the assumptions of the analysis could not be assessed. Because I focused solely on the 5-year period following enactment of ACA (2010-2015), there was only one 5-year survival rate available for analysis for each group. Descriptive statistics were calculated and reported to examine and compare the 5-year survival rates for African American and White women.

Table 3 presents means and standard deviations for length of survival (in months) for the overall sample and for patients by race. The aggregated mean length of survival for African American and White patients was 30.69 months ( $SD = 20.58$ ). Of the disaggregated lengths of survival, White women had the longer mean length of survival at 30.89 months ( $SD = 20.61$ ). The mean length of survival for White women was also slightly longer than the mean aggregated length of survival.

Table 3

*Descriptive Statistics for Length of Survival, Aggregated and by Race (N = 337,929)*

	<i>N</i>	Min	Max	<i>M</i>	<i>SD</i>
Overall	337929	0	71	30.69	20.58
African American	41726	0	71	29.26	20.29
White	296203	0	71	30.89	20.61

Table 3 presents frequencies and percentages for number of patients who survived for at least 5 years after diagnosis, aggregated and by race. The aggregated number of patients who survived for at least 5 years after diagnosis was 11.5% ( $n = 38,715$ ). The number of patients who survived for at least 5 years after diagnosis was highest for White patients ( $n = 34,521$ , 11.7%). The number of White women who survived for at least 5 years after diagnosis slightly exceeded the number for the aggregated sample of African American and White women.

Table 1

*Descriptive Statistics for 5-Year Survival, Aggregated and by Race (N = 337,929)*

	<i>N</i>	<i>%</i>
Overall		
Did not survive for at least 5 years	299,214	88.5
Survived for at least 5 years	38,715	11.5
African American		
Did not survive for at least 5 years	37,532	89.9
Survived for at least 5 years	4,194	10.1
White		
Did not survive for at least 5 years	261,682	88.3
Survived for at least 5 years	34,521	11.7

The descriptive statistics reported indicated that African American women in the data set had lower survival numbers than White women from 2010 to 2015. The mean length of survival for White women exceeded the mean aggregated length of survival for African American and White women. Similar to the findings for length of survival, the number of White women who survived for at least 5 years after diagnosis was slightly higher than the aggregated number for African American and White women following the enactment of the ACA.

### **Ancillary Analysis**

To provide additional depth of analysis, ancillary statistical analyses were conducted to further explore the data. Because of the insufficient amount of survival rate data, a comparison of survival rates could not be conducted. However, enough data were available to conduct a chi-square analysis assessing the presence of an association between race and if participants survived for at least 5 years. Chi-square tests of independence allow examination of associations between nominal variables (Field, 2013). The nominal variables in the analysis were race, operationalized as African American and White, and 5-year survival, operationalized as did not survive and did survive. To conduct a chi-square analysis, the cases must belong to mutually exclusive groups (e.g., a case cannot be coded as both African American and White or did not survive and did survive). The data met this assumption. Also, there could not be any expected frequencies of zero and no more than 20% of the cells could have an expected frequency of less than five (Pagano, 2010). The data also met both these assumptions.

Figure 1 presents a bar graph of the 5-year survival for African American and White women. Table 4 provides the observed counts and percentages for the analysis. The results of the chi-square test of association were statistically significant,  $\chi^2(1) = 92.67, p < .001$ . These results indicate that there was a statistically significant association between race and survival within the data. Examination of the table and corresponding figure indicate that White women (11.7%) were more likely to survive for at least 5 years following diagnosis than African American women (10.1%). These findings indicate that the disparity in survival rate persisted within the sample following enactment of the

ACA.

Table 2

*Chi-square Test for Race By 5-year Survival*

	5-year survival	
	Did not survive	Survived
African American	37532 (89.9%)	4194 (10.1%)
White	261682 (88.3%)	34521 (11.7%)

Note.  $\chi^2(1) = 92.67, p < .001$ .

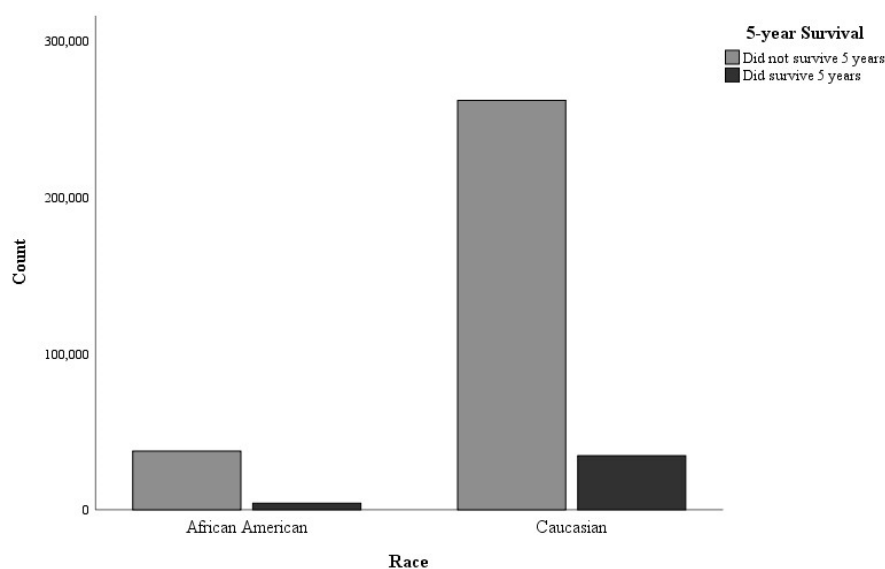


Figure 1. Bar graph of 5-year survival for African American and White women.

Finally, an independent samples *t*-test was conducted between race and length of survival in months. Prior to conducting the analysis, the assumptions of normality and homogeneity of variance were assessed. The results of the Kolmogorov-Smirnov test for normality ( $p < .001$ ) indicated that the assumption was violated; however, with a large sample size the independent samples *t*-test is considered robust to violations of normality (Morgan, Leech, Gloekner, & Barrentt, 2012). The data set is of ample size to assume that the test is robust to this violation. A Levene's test was conducted to assess if the



assumption of homogeneity of variance was met. The results of the Levene's test was not met ( $F = 43.96, p < .001$ ) therefore equal variance was not assumed. The  $t$  statistic that was adjusted to reflect that equal variance could not be assumed was interpreted.

Table 5 presents the results of the independent samples  $t$ -test. The results of the analysis indicated that there was a statistically significant difference in the length of survival between African American women and White women,  $t(54581.64) = -15.34, p < .001$ . The mean length of survival for African American women was 29.26 months ( $SD = 20.29$ ) while the mean length of survival for White women was 30.89 months ( $SD = 20.61$ ).

Table 3

*Independent Samples t test for Length of Survival by Race*

African American	White			
<i>M (SD)</i>	<i>M (SD)</i>	<i>t</i>	<i>df</i>	<i>p</i>
29.26 (20.29)	30.89 (20.61)	-15.34	54581.64	< .001

### Summary

The purpose of this quantitative comparative study was to examine the differences between implementation of the ACA and 5-year breast cancer survival rates, with a specific focus on survival rate disparities between African American and White women. SEER data for breast cancer cases from 2010 to 2015 were accessed to investigate the presence of statistically significant differences in survival rate between African American and White women following passage of ACA. The results indicated that White women had a higher 5-year survival rate than African American women. Because there was only one 5-year survival rate for each group during the period under investigation, an

independent samples *t*-test could not be conducted to determine if the difference was statistically significant. However, a chi-square test of association was conducted to determine if race was associated with whether patients survived for at least 5 years. This analysis indicated that there was a statistically significant association between race and survival, with White women being more likely to survive for at least 5 years than African American women. Additionally, an independent samples *t*-test was conducted to determine if there was a statistically significant difference in the length of survival (in months) by race. This analysis indicated that there was a statistically significant difference, with White women surviving for more months on average than African American women. These findings indicated that racial disparities in survival persisted following enactment of the ACA within the available data. Section 4 will provide an interpretation of these findings, the limitations of the study, and recommendations for future research.

#### Section 4: Application to Professional Practice and Implications for Social Change

##### **Introduction**

While behavioral and biological differences affect breast cancer survival rates (Keenan et al., 2015), the persistent racial disparity in breast cancer mortality indicates that nonbiological factors, such as care quality and access, may account for racial differences in breast cancer survival (Mandelblatt et al., 2013). The purpose of this quantitative comparative study was to examine the differences between implementation of the ACA and disparities in the 5-year breast cancer survival rates between African

American and White women. The research question guiding this study was as follows: Do differences exist in the 5-year breast cancer survival rate between African American and White women after the enactment of the ACA?

The nature of this study was quantitative, and it followed a retrospective design using cohort data from the SEER Program (see NIH, 2018). Longitudinal data, consisting of breast cancer survival and incidence data for the years 2010 through 2015, were pulled from the database for this investigation. Descriptive statistics and a chi-square test of association was conducted to determine if race was associated with 5-year survival rates.

Study results indicated a statistically significant association between race and survival, with White women being more likely to survive for at least 5 years than African American women. On average, White women survived for more months than African American women. These findings suggest that racial disparities in survival have endured after the enactment of the ACA.

This final section provides a discussion of study results, beginning with my interpretation of the findings. Study limitations, practical recommendations, and suggestions for future research are provided. Implications of the findings for professional practice and social change are also discussed. I conclude the section with my final remarks.

### **Interpretation of the Findings**

In this study, descriptive statistics were calculated and reported to examine and compare the 5-year survival rates for African American and White women. The aggregated mean length of survival for African American and White patients was 30.69

months ( $SD = 20.58$ ). Of the disaggregated lengths of survival, White women had the longer mean length of survival at 30.89 months ( $SD = 20.61$ ). The mean length of survival for White women was also slightly longer than the mean aggregated length of survival. The aggregated number of patients who survived for at least 5 years after diagnosis was 11.5% ( $n = 38,715$ ). The number of patients who survived for at least 5 years after diagnosis was highest for White patients ( $n = 34,521$ , 11.7%). The number of White women who survived for at least 5 years after diagnosis slightly exceeded the number for the aggregated sample of African American and White women. The descriptive statistics reported indicated that African American women in the data set had lower survival numbers than White women from 2010 to 2015.

In addition to the descriptive statistics, a chi-square test of independence was conducted to assess for the presence of an association between race and if participants survived for at least 5 years. These results indicated a statistically significant association between race and survival within the data. White women (11.7%) were more likely to survive for at least 5 years following diagnosis than African American women (10.1%). These findings indicate that the disparity in survival rate persisted within the sample following enactment of the ACA.

When compared to previous research on breast cancer survival and racial disparities, some similarities and differences to the current study emerged. For example, when considering disparities reported by previous researchers, findings from this study are encouraging. DeSantis et al. (2016) reported that although African American women are less likely to develop breast cancer than White women, they were 42% more likely to

die from the disease. The disparity in survival that emerged in the current study (11.7% for White women, 10.1% for African American women) was significantly lower (1.6%). Certainly, this may relate to differences in the data or analyses conducted, but overall, findings from the current study are encouraging in this regard. Findings from the current study extend the research on racial disparities in breast cancer survival and suggest that disparities may be improving as a result of the ACA enactment.

However, because disparities still exist after the ACA enactment, it is important to consider care areas that still require attention. For example, although the ACA may make access to healthcare more affordable, it does not cover indirect costs associated with treatment and follow-up care, such as lost wages (Palmer et al., 2015). Also, it does not address access issues related to transportation, nor the availability of doctors and medical facilities to which individuals have access. Finally, the law does not address the complex cultural and social barriers that minority and underserved communities often face, especially with regards to using preventive services. All of these factors may contribute to the persistence of the disparities, post-ACA. Accordingly, Palmer et al. (2015) called for ongoing research on the effects of the ACA on healthcare costs for cancer patients and survivors in order to identify ways the ACA could be improved. Findings from the current research echo this sentiment, suggesting that although the ACA has led to improvements in health outcomes for disadvantaged and marginalized populations, it remains far from perfect.

While the ACA has improved access to private insurance for people who may have been unable to previously afford it, it does not address some of the disparities made

evident by other researchers, regarding the subpar care quality provided to individuals (who are disproportionately minority) who receive government-funded healthcare through Medicaid. For example, Gerhard et al. (2017) reported that uninsured minorities or those on Medicaid were more likely to receive nondefinitive care or treatment at poorly-equipped care facilities.

Researchers have also reported a number of nonfinancial barriers that may contribute to the disparities in care outcomes evident among African American breast cancer patients. These disparities include patient-physician trust (Boulware et al., 2016; Elope et al., 2017), healthcare messaging and campaigns (Elope et al., 2017; James et al., 2016), insured status (Walker et al., 2014), preventive care (Daly & Olopade, 2015), delays in treatment and follow-up (Advani et al., 2013; Keating et al., 2006; Silber et al., 2013), financial barriers (Palmer et al., 2015; Yabroff et al., 2014), fear (Hays et al., 2009; Palmer et al., 2015), appropriateness of treatment (Daly & Olopade, 2015), patient education (Fagerlin et al., 2008; Janz et al., 2008), obesity rate (Dietze et al., 2015), and biology/genetic predispositions (Dietze et al., 2015). Thus, as findings from the current research indicate a persistent racial gap in survival outcomes, it is likely that any number of these unaddressed factors could contribute to survival rate disparities.

### **Limitations of the Study**

This study was subject to limitations. Although findings are useful for identifying racial differences in breast cancer survival after enactment of the ACA, the analysis was limited 6 years of available data after the ACA's enactment. In addition, findings cannot be used to establish causal links between racial disparities in breast cancer survival and

enactment of the ACA, as a bevy of other, uncontrolled for variable may influence survival. Findings are also limited to the accuracy of the data entered into the SEER database. SEER data covers approximately 28% of the populations, making it a strong, but not complete, sample of the population. A number of cases had to be removed from the final dataset because they were incomplete; the final data set consisted of 337,929 cases.

Another limitation emerged after I accessed the data. Although the original analysis plan was to conduct an independent samples *t* test to determine if there was a statistically significant difference in the 5-year survival rate between African American and White women, this type of test requires at least two data points for each group under analysis. Additionally, without the required minimum number of observations, the assumptions of the analysis could not be assessed. Because I focused solely on the 5-year period following enactment of ACA (2010-2015), there was only one 5-year survival rate available for analysis for each group. Thus, descriptive statistics were used to examine and compare the 5-year survival rates for African American and White women. Because of the insufficient amount of survival rate data, a comparison of survival rates could not be conducted. However, enough data were available to conduct a chi-square analysis assessing the presence of an association between race and if participants survived for at least 5 years.

### **Recommendations**

A number of recommendations for future research emerged from this study. First, although findings revealed that a racial discrepancy in 5-year breast cancer survival rates

have persisted after enactment of the ACA, compared with findings from previous researchers (DeSantis et al., 2016), the discrepancy appears to have dropped significantly. Although the goal is to remove this discrepancy altogether and improve breast cancer survival rate for women of all races, findings from this study are encouraging as they indicate movement in the right direction. However, what remains unknown is what, exactly, these improvements may be attributed to.

Previous researchers have indicated that a number of factors may contribute to racial disparities in cancer incidence and survival, including patient-physician trust (Boulware et al., 2016; Elopre et al., 2017), healthcare messaging and campaigns (Elopre et al., 2017; James et al., 2016), insured status (Walker et al., 2014), preventive care (Daly & Olopade, 2015), delays in treatment and follow-up (Advani et al., 2013; Keating et al., 2006; Silber et al., 2013), financial barriers (Palmer et al., 2015; Yabroff et al., 2014), fear (Hays et al., 2009; Palmer et al., 2015), appropriateness of treatment (Daly & Olopade, 2015), patient education (Fagerlin et al., 2008; Janz et al., 2008), obesity rate (Dietze et al., 2015), and biology/genetic predispositions (Dietze et al., 2015). Because data used for this study were used to examine the 5-year breast cancer survival rate after enactment of the ACA, it is possible that the drop in the racial disparity is due to increased access to diagnostic and preventive healthcare among African Americans, via coverage offered through the ACA. However, the scope of the current study was too broad, and the analysis precluded me from identifying causal relationships. Thus, future researchers may conduct further investigations to understand exactly what factors may be contributing to the reduction in racial disparities in 5-year breast cancer survival rates.



Because the I only focused on 5-year survival rates in this study, it would be useful to understand if racial discrepancies in the incidence of breast cancer have changed since the ACA. Although the incidence of breast cancer is related to a number of physiological predictors that are likely unrelated to any effects of the ACA, an examination of changes in the incidence rate alongside changes in survival rates would provide a more comprehensive understanding of the effects of the ACA and persistent gaps in care that remain unaddressed. For example, previous researchers found that the incidence rate of breast cancer among African American women was significantly lower than that of White women, yet survival for African American women was much lower (Dietze et al., 2015). Thus, future researchers may examine racial disparities in breast cancer as the degree of deadliness or mortality associated with a diagnosis for women of each race. In other words, it would be interesting to study the breast mortality rate as a ratio of incidence rate to mortality rate for African American versus White women (Dietze et al., 2015).

A number of options for qualitative research would also shed important additional light on racial discrepancies in breast cancer survival, as well as why those disparities appear to be on the decline. For example, future qualitative examinations could involve research to understand if and how education about preventive care for breast cancer has changed in recent years. Studies could also be conducted to understand if patient fear or trust in doctors has changed. An analysis of educational campaigns that integrate targeted messaging specific to racial minorities may also shed light on the factors contributing to a reduction in racial disparities of breast cancer survival. From a quantitative perspective,

population research that looked at the incidence of physiological risk factors, such as obesity, in conjunction with breast cancer incidence and survival rates, may also further understandings about the factors that seem to be leading to improvements among African American women.

### **Implications for Professional Practice and Social Change**

#### **Professional Practice**

Implications for professional practice can be gleaned from the current research. First, although improvements in the racial disparities of breast cancer survival rates were indicated in by this study, the fact remains that disparities still exist. Racial disparities should be of concern for healthcare practitioners, and steps may be taken at the micro level, between individual patients and their healthcare professionals, to continue to reduce this racial disparity. For example, because previous investigations indicated that fear and trust issues may create significant barriers to care for African Americans, healthcare professionals could become aware of these boundaries and take steps to reduce patient fears and nurture the development of trusting patient-provider relationships. Similarly, healthcare providers, policy makers, and community leaders could support programs and interventions designed to educate African American women about preventive breast care. In addition, targeted messaging campaigns intended to reach the African American community may be developed and implemented to raise breast cancer awareness and improve preventive healthcare behaviors among this populations.

At the level of professional practice, it also remains important to ensure that African American women not only have access to care, but that they understand how to

access the resources available to help them. The ACA has made healthcare more accessible for individuals who have historically lacked it, but simply having healthcare coverage is not enough to improve health outcomes – individuals must also utilize the care available to them. They must understand how to set doctor appointments, how to find providers in their area, when they should start accessing preventive care services, what kind of coverage their healthcare policies cover, etc. They should also understand the resources available to help them cover any financial gaps between the coverage of their policies and the out-of-pocket costs for care services. For women who do not have private insurance and cannot afford it through the ACA, practitioners need to educate them and help them enroll in government-funded health coverage.

These recommendations for professional practice also align with the theoretical framework for the current study, which was based on Penchansky and Thomas's (1981) concept of healthcare access. According to the scholars, *access* describes the degree of fit between healthcare clients and the healthcare system. Four dimensions contribute to *fit*, including accessibility, accommodation, affordability, and acceptability. *Availability* describes the care providers, facilities, and treatment options that are available to a patient.

*Accessibility* describes the access that an individual has to care providers and facilities, specifically in the context of transportation, travel time, and travel costs.

*Accommodation* describes “the relationship between the manner in which the supply resources are organized to accept clients” (Penchansky & Thomas, 1981, p. 126).

Elements that determine accommodation include systems for appointment-setting, hours

of operation, walk-in facilities, and telephone services. *Affordability* describes the relationship between healthcare costs and a client's income, insurance status, and ability to pay. Finally, *acceptability* describes clients' attitudes toward the characteristics of providers.

From the lens of professional practice, findings from the current research can be used to support the integration of Penchansky and Thomas's (1981) theory in practice. Because racial disparities in breast cancer survival rates have persisted, practitioners may consider how the four elements of accessibility, accommodation, affordability, and acceptability may be improved to increase access to high quality care among African American women, which may ultimately help to improve breast cancer survival rates among these women.

### **Positive Social Change**

In terms of positive social change, the main implication of findings from the current study is that although progress is being made toward reducing racial disparities in breast cancer survival rates, the disparity remains. Especially when considering that African American women are less likely than White women to be diagnosed with breast cancer, the reality that they are still more likely to die within 5 years of diagnosis is troubling. The positive social change implication here is really that more work needs to be done, and findings from this study support that. The ACA may be working to help reduce the racial disparities in breast cancer survival, but providing access to healthcare is not necessarily enough. As previously mentioned, women need to also be educated about breast health, preventive care, how to access care resources, and how to cover financial

expenses that may be unaffordable. When these things begin to happen more consistently, more equality in health care will be observed and true social change will emerge.

### **Conclusion**

The purpose of this quantitative comparative study was to examine the differences between implementation of the ACA and disparities in the 5-year breast cancer survival rates between African American and White women. An examination of longitudinal data, consisting of breast cancer survival and incidence data for the years 2010 through 2015, revealed that a statistically significant association between race and survival, with White women being more likely to survive for at least 5 years than African American women.

Overall, work is needed to improve racial disparities even with the enactment of the ACA. On a larger level, communities, healthcare leaders, and policy makers need understand that addressing this problem requires more than just providing affordable access to healthcare. It also may require really examining what *affordable* means and coming up with ways to address non-financial care barriers. This study provides practical recommendations for future research, professional practice, and draws attention to an enduring problem that warrants more attention.

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