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Breast Cancer Knowledge, Attitude, and Screening Practices among Hispanic/Latino Women

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This is to certify that the doctoral study by

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Walden University
2020

Abstract

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Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Public Health

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Abstract

Nearly 1 out of every 8 women will develop breast cancer during her lifetime, making breast cancer the most common noncutaneous malignancy in women, particularly among the Hispanic/Latino population. Hispanic/Latino women are more likely than non-Hispanic/Latino women to be diagnosed with breast cancer after the disease has progressed to a fatal stage. This quantitative study measured how knowledge, attitude, and screening practices affect the prevalence and outcomes of breast cancer cases among Hispanic/Latino women while controlling for socioeconomic status factors, using social cognitive theory as a framework. This research uses secondary data analysis of a cross-sectional survey study, the 2014 Health Information National Trends Survey, which collected pertinent breast cancer health information on the Hispanic/Latino population in the United States. Descriptive characteristics were derived from a sample population of 3,677, a logistic regression analysis model was used to compute crude odds ratio and confidence interval. The findings revealed that Hispanic/Latino women had a positive attitude toward information sources such as physicians and medical facilities; however, the findings indicate Hispanic/Latino women had negative attitude when these individuals lacked information sources. There were notable differences in how frequently Hispanic/Latino women access screening practices, due to income, knowledge, culture, and attitudes toward a health condition like breast cancer. The findings revealed an opportunity for health professionals to promote breast cancer awareness by educating Hispanic/Latino women about the importance of screening practices and behavioral compliance to reduce their late-stage diagnoses of breast cancer.

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Dedication

I want to dedicate this doctoral degree to my parents, Ravi Seepersaud and Seewantie Seepersaud, who have supported my educational goals and aspirations throughout my entire academic career. Also, I would like to thank my two siblings, Ravindra Sepersaud and Kamini Seepersaud, for their wisdom and support throughout my educational path. Finally, I would also like to thank my girlfriend, Sudha Janaki Raman, for her support and advice throughout the process.

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Section 1: Introduction to the Study

Background

Cancer is defined as a group of conditions that cause cells in the body to change and grow in an uncontrolled manner (American Cancer Society, 2017). Most cancers occur sporadically and are caused by somatic mutations (American Cancer Society, 2017). Cancers arise when the cells in a particular region of the body grow out of control (American Cancer Society, n.d.), and can be classified as malignant or benign (Centers for Disease Control and Prevention [CDC], 2017a). Breast cancer is a condition in which a cancerous growth occupies the breast tissues. Breast cancer can originate in different regions of the breast, and the type of breast cancer a woman acquires depends on which cells in the breast become malignant (CDC, 2017a). The most common form of breast cancer invasive ductal carcinoma, whereby cancer cells develop within parts of the breast tissue outside of the duct (CDC, 2017a). The second-most common form of breast cancer is invasive lobular carcinoma, in which cancer cells spread from the lobules to nearby breast tissues (CDC, 2017a).

Breast cancer has become a major global public health issue (Nuño, Castle, Harris, Estrada, & García, 2011). It affects women of all demographics in both developed and developing countries (Banegas et al., 2012). Nearly one out of every eight women will develop breast cancer during their lifetime. Worldwide, more than one million women are diagnosed with breast cancer each year, of which more than 410,000 will succumb to the disease (Curao, 2011). Indeed, breast cancer has become the most widespread form of cancer among women worldwide, in both advanced and developing countries, with estimated mortality ranging from 6 to 29 per 100,000 (Demchig, Mello-Thoms, & Brennan, 2017).

As of 2017, breast cancer was the fifth most common cause of cancer-related death, with 410,000 deaths per year in women (Demchig et al., 2017). Studies have shown that various predispositions and other factors increased the risk of breast cancer, including genetics, body mass index (BMI), reproductive factors, alcohol intake, diet, level of physical activity, knowledge, behavior, and screening practices (Demchig et al., 2017, 2013). The incidence of breast cancer varies from country to country; however, breast cancer rates are significantly higher in developing countries than in developed countries (Demchig et al., 2017).

Alexandraki and Mooradian (2010) reported breast cancer to be the most common form of non-cutaneous malignancy among United States women, noting that it was particularly prevalent among Hispanic/Latino women (Alexandraki & Mooradian, 2010). Hispanics/Latinos are the second-largest demographic in the United States behind non-Hispanic whites (NHWs) (Siegel et al., 2015). In the United States, the incidence of breast cancer is significantly higher among Hispanic/Latino women, a phenomenon attributed to a vulnerability arising from cancer inequality. These individuals face considerable barriers to accessing the required levels of health care and disproportionately reside in conditions of poverty (Siegel et al., 2015).

Because the Hispanic/Latino population is increasing in the United States, breast cancer among women in this demographic has imposed a significant financial burden (Ekwueme, Allaire, Guy, Arnold, & Trogdon, 2016). Breast cancer has increased markedly in both incidence and prevalence among Hispanic/Latino women over time (National Cancer Institute [NCI], 2015). In 2012, breast cancer was diagnosed in approximately 17,100 Hispanic/Latino women and caused 2,400 deaths among this demographic (Breastcancer.org, 2018; CDC, 2017a). Invasive breast cancer is the most diagnosed cancer in Hispanic/Latino women in the United States, accounting for 19,800 new cases and 2,800 deaths in 2015 (American Cancer Society, n.d.).

In this study, I examine how factors such as knowledge, attitude, perceptions, observations, and screening practices are associated with breast cancer differences in Hispanic/Latino women. These factors were the primary variables for the study; essential to evaluate because they involve distinct elements that can prevent Hispanic/Latino women from getting screened for breast cancer (Aparicio-Ting, & Ramirez, 2003). Screening participation, strong knowledge, and positive attitude/perceptions are essential factors in minimizing the occurrence and reoccurrence of breast cancer, along with maintaining the welfare of Hispanic/Latino women (Aparicio-Ting, & Ramirez, 2003; Banegas et al., 2012). Hispanic/Latino women have shown low participation rates in preventive cancer care (Hurtado-de-Mendoza; Aparicio-Ting, & Ramirez, 2003), and tend to hold negative attitudes/perceptions toward breast cancer (Aparicio-Ting, & Ramirez, 2003). Limited culturally sensitive breast cancer prevention education and poor communication have contributed to Hispanic/Latino women from various subgroups and economic scales to be less aware of the screening tests available to them (Costas-Muñiz Hunter-Hernández, Garduño-Ortega, Morales-Cruz, & Gany, 2017). Income, health coverage status, education level, and attitude were the most consistent predictors of preventive screening behaviors amongst Hispanic/Latino women. However, breast cancer screenings relied heavily on the type and quality of information available that describes the risks in this population (Salinas, Byrd, & Martin, 2018). Hispanic/Latino women's broadly negative attitude toward breast cancer is due to their low self-efficacy and misconceptions regarding their diagnosis of this disease (Salinas et al., 2018; Chavez-Korell et al., 2012)

The independent variable attitude was essential to explore in this study because fatalistic attitudes and beliefs prevent Hispanic/Latino women from accessing breast cancer screening services (HealthDay, 2010). Hence, women from this racial group are more likely than NHW women to believe that breast cancer is not preventable (HealthDay, 2010). As such, death rates caused by breast cancer are higher among Hispanic/Latino women (HealthDay, 2010). Numerous studies have established a statistically significant correlation between fatalism and diminished use of breast cancer screening services (HealthyDay, 2010). Improving breast cancer diagnosis, screening utilization, and mortality outcomes are required for Hispanic/Latino women to improve their understanding and prognosis of their condition (Healthy Day, 2010).

Research results indicate that an increase in health awareness, consistent education, and screening practices can significantly change Hispanic/Latino women's knowledge and beliefs about breast cancer (Hall, Pfriemer, & Wimberley, 2007). A higher proportion of Hispanic/Latino women experience a lower quality of life (QoL) than women from other racial groups; an observation that is associated with late-stage breast cancer diagnosis in Hispanic/Latino women (Graves et al., 2012). Such lower quality in the life of Hispanic/Latino women was due to their later stage diagnosis of breast cancer (Graves et al., 2012). Women of Hispanic/Latino descent initiate breast cancer treatments later in life compared to women from other racial/ethnic groups (Kouri, He, Winter, & Keating, 2010). Fatalistic views, a lack of health knowledge, and low use of preventive practices have stopped Hispanic/Latino women from maintaining a higher quality of health (Bowen et al., 2007; Kouri et al., 2010). In this study, I examine the extent to which screening practice, health literacy, and attitudes have predisposed Hispanic/Latino women to diagnoses of advanced breast cancer.

Livaudais et al. (2010) explained that low levels of knowledge about, and negative associations with, breast cancer screening affect Hispanic/Latino women’s use of early detection practices (EDPs). Consequently, such women experienced delays when initiating treatment and care after their breast cancer diagnosis. My quantitative study revealed that Hispanic/Latino women had a poorer perception and lower awareness of the importance of breast cancer screening than NHWs did. As a result, increasing Hispanic/Latino women’s knowledge of cancer and propensity to engage with EDPs may improve breast cancer diagnoses and outcomes in this population at an earlier stage. The working hypothesis of my quantitative study examines the extent to which knowledge about breast cancer differs between Hispanic/Latino women and women of other races.

In this quantitative research study, I provide a perspective on the epidemiology and risk factors, as well as the barriers that were preventing Hispanic/Latino women from attaining a better QoL (Borrayo et al., 2009). My study differs from previous studies due to my focus on Hispanic/Latino women’s lack of knowledge and resources implicated in breast cancer diagnosis and treatment. I aimed to gain a detailed understanding of how the behavior of Hispanic/Latino women influenced their likelihood of getting screened for breast cancer (Borrayo et al., 2009; Flynn, Betancourt, & Ormseth, 2011). This research is unlike other studies, which have focused little, if at all, on how attitudes, perceptions, and screening can influence the incidence of breast cancer in Hispanic/Latino women. In this study, I measure the difference in knowledge, attitude, and screening practices among Hispanic/Latino women and women from other races.

Limited availability of health information has impacted the attitude and screening practices of Hispanic/Latino women and their use of cancer-related resources (Haile et al., 2012; Patterson, 2010). I use the social cognitive theory (SCT) as the prime theoretical framework for this study to examine how Hispanic/Latino women’s health knowledge affects their willingness to undertake preventive breast cancer measures. I designed the research questions in this study to evaluate the differences in knowledge, attitude, and screening concerning breast cancer among Hispanic/Latino women, and their likelihood of being screened for breast cancer. I aimed to establish whether differences in knowledge, attitude, screening practice were influencing the diagnosis of breast cancer among Hispanic/Latino women. I used secondary data analysis of a cross-sectional study that collected data through survey questionnaires and phone calls for inclusion in the Health Information Trends Surveys (HINTS) database. The findings of this earlier study had revealed that household income, age, knowledge group, and race/ethnicity all significantly affected the incidence of breast cancer in Hispanic/Latino women (Hunt, 2016). This was true for those who were less likely to be diagnosed with breast cancer when the cancer remained localized (Hunt, 2016; Haile et al., 2012).

Importantly, Hispanic/Latino women were vulnerable to cancer-related inequalities, especially breast cancer that resulted from disproportionate levels of poverty, failure to have a mammogram, cultural approaches, and barriers to health care (Siegel et al., 2015). Hunt (2016) found that breast cancer was the most diagnosed cancer in Hispanic/Latino women, as well as the primary cause of premature death in this group. Far too often, preventive breast cancer care has gone unnoticed for Hispanic/Latino women, leading to later diagnoses and a higher mortality rate (Huffingtonpost, 2012; Saint-Germain, & Longman, 1993). Previous studies found more favorable outcomes when the disease was detected in its initial stages and followed by early intervention. However, Hispanic/Latino women were often diagnosed with breast cancer later, when the cancer had almost reached the metastatic stage that is less responsive to treatments (Ashing-Giwa et al., 2004; Hunt, 2016).

All women aged 50 or above are required to have a mammogram every one to two years in the United States (Seely, & Alhassan, 2018; Livaudais et al., 2010). The American Cancer Service (ACS) recommends that women aged 45–54 years undertake breast cancer screening annually (Seely, & Alhassan, 2018). The development of breast cancer growth is faster in premenopausal women than postmenopausal women (Seely, & Alhassan, 2018). However, in 2010, the National Health Interview Survey (NHIS) reported that only 58.8% of Hispanic/Latino women aged 40–64 had a mammogram within the preceding two years, a proportion that has declined further in recent years

(Livaudais et al., 2010). Hispanic/Latino women often face numerous barriers to obtaining their first mammogram and undergoing breast cancer screening every one to two years (Hunt, 2016). Consequently, these women are more likely to be diagnosed with breast cancer after the disease had metastasized (Hunt, 2016). Further, these women usually only had irregular access to treatment options and interventions (Livaudais et al., 2010).

Numerous risk factors contribute to Hispanic/Latino women's irregularity in seeking mammography screenings (Nuño et al., 2011). In turn, these can affect the frequency with which women receive a breast cancer diagnosis at a fatal stage (Nuño et al., 2011). When compared to NHWs, Hispanic/Latino women have less access to preventive services because of their generally lower income (Livaudais et al., 2010). Moreover, Hispanic/Latino women face considerable limitations regarding their ability to access health insurance coverage (Livaudais et al., 2010). More significantly, low levels of health knowledge and awareness about cancer, along with cultural beliefs, reduce the likelihood of breast cancer screening and engagement in preventive behavioral practices among Hispanic/Latino women (Livaudais et al., 2010). Such barriers have created and caused considerable disparities in the early and subsequent stages of diagnosis (Rauscher, Allgood, Whitman, & Conant, 2012). In particular, psychological barriers such as fear of pain related to the mammography, along with the fear of being diagnosed with cancer, have prevented U.S. Hispanic/Latino women from seeking mammography screening (Rauscher et al., 2012). Behavioral factors such as disease screening practices, physical health beliefs, individual perceptions about breast cancer, and timely adherence to guidelines also contribute to differences in breast cancer survival rate among Hispanic/Latino women (Molina, Thompson, Espinoza, & Ceballos, 2013). These factors had also created irregularities in mammography screenings among these women (Hunt, 2016; Molina et al., 2013).

Molina et al. (2013) reported that early-stage breast cancer detection and prognosis improved with adherence to screening guidelines. As Molina et al. (2013) explained, this consideration is important for Hispanic/Latino women because of their different rates of breast cancer examinations (BCEs) and mammograms (Molina et al., 2013). Barriers to communication also gave rise to negative experiences throughout the breast cancer continuum, possibly affecting rates of breast cancer mortality (Molina et al., 2013). In turn, these negative experiences have contributed to the development of negative perceptions of breast cancer screening and mammography among Hispanic/Latino women. Healthcare providers are less inclined to recommend mammography screenings to Hispanic/Latino women than they are to NHWs (Molina et al., 2013). Concurrently, Hispanic/Latino women are less likely to understand the recommended follow-up care procedures. As a result, these women are less likely to adhere to follow-up care after receiving an abnormal mammogram test result (Molina et al., 2013). These behaviors are likely to be a function of lower levels of health literacy, linguistic barriers, relatively higher costs of treatment, and Hispanic/Latino women’s negative attitude toward mammography screenings (Kadivar, Kenzik, Dewalt, & Huang, 2016; Molina, 2013).

Breast cancer screenings have been associated with depression, anxiety, and lowered QoL in Hispanic/Latino women (Molina et al., 2013). Specifically, Hispanic/Latino women experience high levels of anxiety after receiving atypical mammogram results that are associated with diagnostic delays (Molina et al., 2013). Low mammography screening practices and negative attitudes and perceptions by Hispanic/Latino women have been associated with breast cancer and caused mental health issues and a reduced QoL among Hispanic/Latino women (Ell et al., 2005; Molina et al., 2013). This was a normal occurrence among Hispanic/Latino women who had breast cancer, especially those who survived the disease after diagnosis (Williams et al., 2011).

The focus of the current quantitative study was determining the extent to which the difference in attitude/perceptions, screening practice, and knowledge affects breast cancer diagnosis among Hispanic/Latino women. The findings of this study may contribute to an understanding of the barriers and challenges that have prevented Hispanic/Latino women from seeking breast cancer screenings.

Problem Statement

Breast cancer is an increasingly problematic disease that is impairing the health and welfare of Hispanic/Latino women (Guerrero et al., 2016; Haile et al., 2012). Multiple studies have shown that Hispanic/Latino women are disproportionally affected by breast cancer (Fernández et al. 2009; Aragones, Hayes, Chen, González, & Gany, 2014; Krogstad & Lopez, 2015). The rates of acquiring and dying from breast cancer are considerably higher in Hispanic/Latino women compared to women from other racial and ethnic groups (Cunningham, Shaw, Blakely, Atkinson, & Sarfati, 2010). Further, variation in knowledge, screening practice, and attitude/perceptions have caused Hispanic/Latino women to be diagnosed with breast cancer at a later stage than their NHW counterparts (Yanez et al., 2016). Although previous studies have shown that more Hispanic/Latino women are diagnosed with late-stage breast cancer, there has been less focus on how knowledge, attitude, and screening practices have contributed to this outcome (Guerrero et al., 2016; Kadivar et al., 2013).

Late-stage diagnoses have caused Hispanic/Latino women to have low breast cancer survival rates (Yanez et al., 2016). Consequently, these women have a five-year survival rate, which is lower than that of NHWs (Molina et al., 2013; Yanez et al., 2016). Inadequate screening practices have caused Hispanic/Latino women, especially those of lower socioeconomic status (SES), to increase their risk of developing metastatic breast cancer at a younger age (Chakraborty et al., 2014; Molina et al., 2013). Research has shown a strong association between SES factors and breast cancer screening adherence among Hispanic/Latino women (Roman et al., 2014). Nonetheless, previous studies have not measured nor identified factors of how low SES and lack of private health coverage may contribute to Hispanic/Latino women feeling less motivated to obtain breast cancer screening tests (Keegan et al., 2010; Roman et al., 2014).

Enrolling in a breast cancer screening program and/or having regular mammograms were not shown to be a prime focus for Hispanic/Latino women (Roman et al., 2014), due to their SES and absence of consistent health insurance coverage (Molina et al., 2013 Livaudais et al., 2010). Specifically, low SES Hispanic/Latino women have shown considerable reservations about breast cancer (Mandal, 2010;). Generally, income, SES, health coverage, and counseling services influenced these individuals' desires and perceived urgency in obtaining breast cancer preventive services (Livaudais et al., 2010). Women of Hispanic/Latino descent have displayed strong misconceptions about breast cancer and the potential health ramifications this disease can impose on their welfare (Molina et al., 2013; Penedo et al., 2016). Resultantly, they were disproportionately diagnosed with non-localized breast cancer that had progressed to an untreatable stage (Molina et al., 2013; Strecker, Williams, Bondy, Johnston, & Northrup, 2002; Fernández et al., 2009). Continuous screening was reported to be important to help women of any racial group to prevent and detect breast cancer (Penedo et al., 2016).

The intermittent use of breast cancer screening services is compounded by a variety of psychological factors (Williams et al., 2016). Specifically, infrequent utilization of breast services and psychosocial factors cause Hispanic/Latino women to be at a higher risk for developing terminal breast cancer (Fernández et al., 2009; Williams et al., 2016). Psychosocial factors such as fear, a fatalistic attitude, and inadequate knowledge contribute to the low rates of breast cancer survival among Hispanic/Latino women (Banegas et al., 2010; Molina et al., 2013). One report indicated that Hispanic/Latino women were becoming less likely to engage in EDPs during their lifetime (Bird et al., 2010), while other studies reveal that their attitudes, knowledge, and reactions to breast cancer have changed over time (Banegas et al., 2010; Castañeda et al., 2014). Kenny (2008) concurred that attitude and knowledge delay Hispanic/Latino women from undertaking mammogram screening.

As already noted, these women are likely to wait longer before initiating breast cancer screening than other racial groups (Banegas et al., 2010; Molina et al., 2013; NCI, 2015). Factors such as individuals' knowledge, personal attitude and views continue to determine the frequency with which Hispanic/Latino women seek regular breast cancer preventive services (Fred Hutchinson Cancer Research Center, 2017). Molina et al. (2013) explain that the health needs and decisions of Hispanic/Latino women relied heavily on the individual's family standpoint. The immediate health needs of Hispanic/Latino women have often gone unaddressed (Molina et al., 2013) and are not of prime importance in their lives. Thus, these women are less likely to engage in EDPs during their lifetime (Abraído-Lanza, Martins, Shelton, & Flórez, 2015; Banegas et al., 2010; Williams et al., 2011). Penedo et al. (2006) reported that although Hispanic/Latino women were at a significant risk of developing metastatic breast cancer, they consistently failed to seek cancer care and resources.

Research studies have shown that Hispanic/Latino women are at a higher risk of developing large tumors following the diagnosis of metastatic breast cancer (Mojica, Flores, Ketchum, & Liang, 2017). This outcome is despite these individuals experiencing substantial delays in obtaining breast cancer screens (Molina et al., 2013). The issue, in this case, was a lack of specific or tailored guidelines to help improve Hispanic/Latino women's participation in screening programs (Power, Chin, & Haq, 2018; Ramirez et al., 2000). At the same time, no appropriate risk reduction strategies nor risk-prediction models to predict Hispanic/Latino women's risk for developing breast cancer or their usage of screening services were identified (Science Daily, 2015; Power et al., 2018).

Without such measures, women from this racial group are not able to understand their risk of developing invasive breast cancer (Science Daily, 2015). Attitudinal constructs, such as perceived control, have impacted Hispanic/Latino women’s outlook regarding their use of breast cancer screening programs (Borrayo, 2009; Epstein, 2014). Reports indicate that women from this particular racial group have low perceived control over their health (Borrayo, 2009; Epstein, 2014).

Purpose of the Study

I conducted this quantitative study to fill the gap in the literature concerning breast cancer knowledge, screening practices, and attitude among Hispanic/Latino women. I evaluated epidemiological risk factors and described the extent to which factors such as knowledge, attitude, and screening practices influenced the differences and outcomes regarding the likelihood of Hispanic/Latino women undertaking a breast cancer mammogram after controlling for SES factors.

I examined whether attitudinal behaviors such as fear, embarrassment, and cultural beliefs influenced the likelihood of Hispanic/Latino women’s engagement in breast cancer preventive measures. I concluded that Hispanic/Latino women tend to seek and obtain health care services less frequently than those of other ethnic groups. In this study, I also explored how low knowledge, while controlling for SES factors (such as work status, age, marital status, and income), had fostered disparities in breast cancer screening among Hispanic/Latino women in the United States. There has been little attention given to Hispanic/Latino women’s attitudes toward their use of cancer treatment services. If social changes are to occur, health providers and public health practitioners should provide Hispanic/Latino women with the information and breast cancer screening services necessary to improve their QoL. I assessed and determined whether particular variables such as screening practice, knowledge, or attitude/perception caused a significant difference in breast cancer mortality among Hispanic/Latino women.

Research Questions and Hypotheses

This research study was guided by three research questions, which each had an alternative hypothesis and a null hypothesis:

- Research Question 1 (RQ1): Is there a difference in knowledge of breast cancer among Hispanic/Latino women and women of other races, after controlling for SES factors (age, marital status, educational level, economic level, and working status)?
- Alternative Hypothesis (H_a1): There is a difference in knowledge of breast cancer among Hispanic/Latino women and women of other races, after controlling for SES factors (age, marital status, educational level, economic level, and working status).
- Null Hypothesis (H_01): There is no difference in knowledge of breast cancer among Hispanic/Latino women and women of other races, after controlling for SES factors (age, marital status, educational level, economic level, and working status).
- Research Question 2 (RQ2): Is there a difference in attitude toward/perception of breast cancer among Hispanic/Latino women and women of other races,

after controlling for SES factors (age, marital status, educational level, economic level, and working status)?

- Alternative Hypothesis (H_a2): There is a difference in attitude toward/perception of breast cancer among Hispanic/Latino women and women of other races, after controlling for SES factors (age, marital status, educational level, economic level, and working status).
- Null Hypothesis (H_02): There is no difference in attitude toward/perception of breast cancer among Hispanic/Latino women and women of other races, after controlling for SES factors (age, marital status, educational level, economic level, and working status).
- Research Question 3 (RQ3): Is there a difference in breast cancer screening practices among Hispanic/Latino women and women of other races, after controlling for SES factors (age, marital status, educational level, economic level, and working status)?
- Alternative Hypothesis (H_a3): There is a difference in breast cancer screening practices among Hispanic/Latino women and women of other races, after controlling for SES factors (age, marital status, educational level, economic level, and working status).
- Null Hypothesis (H_03): There is no difference in breast cancer screening practices among Hispanic/Latino women and women of other races, after controlling for SES factors (age, marital status, educational level, economic level, and working status).

Theoretical Foundation for the Study

The conceptual and theoretical framework for this study utilizes the social cognitive theory (SCT) model (Bandura, 1986). This theory has been used previously to explain how individuals acquire and maintain specific behaviors (Glanz, Rimer, & Viswanath, 2015). SCT has assisted researchers and practitioners to discern the factors that motivated individual health behaviors (Glanz et al., 2015). The SCT model involves several parts:

- Reciprocal determinism is the central aspect of SCT. This refers to the dynamic and mutual interactions of the individual, environment, and behavior (Glanz et al., 2015; Tougas, Hayden, McGrath, Huguet, & Rozario, 2015).
- Behavioral capability refers to a person’s actual ability to perform a behavior as derived from essential knowledge and skills. To successfully perform a behavior, a person must know what to do and how to do it. People learn from the consequences of their behavior, which also affects the environment in which they live (Glanz et al., 2015; Tougas et al, 2015).
- Observational learning asserts that individuals experience and observe behavior as manifested in others and then repeat these actions. In this way, modeling behavior can manifest actions (Glanz et al., 2015).
- Reinforcements are the internal or external responses of an individual’s behavior that affect the possibility of proceeding with or discontinuing that behavior (Glanz et al., 2015; Tougas et al, 2015).

- Expectations refer to the expected consequences of individual behavior. The outcome of behavior could be health-related or non-health-related (Glanz et al., 2015; Tougas et al., 2015).
- Self-efficacy is defined as an individual's level of confidence in their ability to effectively perform a behavior (Glanz et al., 2015; Tougas et al., 2015).

Behavior capability was a fundamental construct used to assess whether Hispanic/Latino women can perform the behavior of engaging in EDPs if provided with essential health information about cancer. This construct evaluated whether Hispanic/Latino women had learned from the consequences of their behavior and attitudes. Further, the construct of reinforcements from SCT was used to recognize and evaluate the outcomes of Hispanic/Latino women's views. Notably, this study assessed the women's views and attitudes about breast cancer if health providers had encouraged them to seek medical care for this disease and explained the associated benefits. The construct of expectations was examined to identify Hispanic/Latino women's level of understanding of the health consequences they may experience if they continue to hold negative views and attitudes toward breast cancer screening.

Because of its proven usefulness, SCT was used to assess how Hispanic/Latino women's health awareness influenced their attitude toward adopting preventive measures for breast cancer. The SCT framework uncovered insights into how Hispanic women's low use of breast cancer screening had led to higher rates of mortality (Glanz et al., 2015). The use of SCT in this study allowed for an evaluation and description of the specific behavioral patterns and factors that had predisposed Hispanic/Latino women to breast cancer (Glanz et al., 2015).

Nature of the Study

This quantitative study evaluated, in-depth, the degree to which limited access to health coverage, low health literacy, and infrequent engagement in screening behaviors affected the rate with which Hispanic/Latino women engaged with breast cancer care (Molina et al., 2013). A cross-sectional design was used in this study to examine Hispanic/Latino women's knowledge, attitudes, and practices concerning breast cancer (Creswell, 2009; Frankfort-Nachmias, Nachmias, & DeWaard, 2015). The independent variable evaluated was race (Hispanic/Latino women and other races), and the dependent variables were measures of knowledge, attitude, and screening practice. The covariate was an SES factor, which included age, marital status, educational level, economic level, and working status.

In this study, data were collected through the revision of secondary data from numerous quantitative sources, including questionnaires, surveys, and focus group discussions (HINTS, n.d.). The Statistical Package for the Social Sciences (SPSS) was used to analyze these data

Literature Search Strategy

The literature used for this study was gathered through numerous databases, including PubMed, ProQuest Science Journal, CINAL, and MEDLINE. Key terms included, but were not limited to, *breast cancer screening*, *attitude, knowledge*, and *behavior in Hispanic/Latino women*. The literature search explored studies related to breast cancer screening and attitude, and examined the following databases: PubMed, 200 journals published between 1996 and 2018; ProQuest Science Journal, 100 journals published between 2002 and 2017; CINAL, 90 journals published between 2007 and 2017; and MEDLINE, 50 journals published between 2010 and 2017.

Definition of Key Variables

Age: Women of Hispanic/Latino descent exhibited a lower rate of breast cancer screening than other women, particularly between the ages of 40 to 64 (Susan G. Komen, 2018). Indeed, most Hispanic/Latino women in this particular age group developed breast cancer because of their limited access to health insurance, which prevented them from being screened for breast cancer or obtaining a mammogram (Susan G. Komen, 2018).

Attitude: Cultural beliefs, values, and perceptions were considered influential factors in how Hispanic/Latino women accessed mammography screenings and breast cancer treatment (Molina et al., 2013). Hispanic/Latino women with a family history of breast cancer and who resided near the U.S.–Mexico border differed from those who lived in the United States or Mexico further from the border. Housing status near or in the United States was highly associated with Hispanic/Latino women’s family history in the form of knowledge, beliefs, and attitudes toward breast cancer and screening practices (Bird et al., 2010). Overall, Hispanic/Latino women’s attitudes toward breast cancer affected their likelihood of seeking care after an abnormal mammogram exam or diagnosis (Molina et al., 2013).

Economic Level: This refers to an individual’s or family’s income relative to that seen in society, in the forms of earning power and assets (American Psychological

Association [APA], 2018). In this study, the economic level was denoted by participants who either had a consistent or irregular income.

Educational Level: This refers to the highest level of education that an individual had attained or was currently completing (U.S. Census Bureau, 2018). In this study, the educational level referred to individuals who had completed some schooling or no schooling at all.

Knowledge: This relates to health literacy influencing how individuals make decisions regarding their health. Hispanic/Latino women's lack of knowledge delayed how these individuals perceive the practice of being screened for breast cancer (Kindig, Panzer, & Nielsen-Bohlman, 2004). Hispanic/Latino women tend to have a low level of knowledge about breast cancer, which has consequently discouraged them from seeking appropriate follow-up care after receiving abnormal mammogram results (Kindig et al., 2004).

Marital Status: A large body of evidence has shown that death rates after a breast cancer diagnosis were far higher in unmarried patients than in those who were married. In turn, unmarried patients were at higher risk of being diagnosed with a later stage of breast cancer and dying from the disease (Martinez et al., 2013). While believed to result from the influence of hormonal changes in unmarried women, this finding was less clear for married and unmarried Hispanic/Latino women who delayed screening and breast cancer treatment (Martinez et al., 2013; Molina et al., 2013).

Screening Practice: Health screening practices are measures and strategies that are used in population health to identify the potential presence of an undiagnosed health condition or disease in people without underlying signs or symptoms (U.S. National Library of Medicine, 2017). The use of screening practices can help diagnose the disease early and make it easier to treat the disability (U.S National Library of Medicine, 2017). Hispanic/Latino women have shown lower compliance rates in breast cancer screening; consequently, inadequate screening increases their chances of developing this disease to a fatal stage (Haile et al., 2012).

Socioeconomic Status (SES): A variety of factors influence the breast cancer survival rate of Hispanic/Latino women (Abraído-Lanza, Chao, & Gammon, 2004). For example, SES causes significant differences in breast cancer screening rates, with Hispanic/Latino women experiencing difficulty in affording or even gaining access to high-quality or preventive health care (Abraído-Lanza et al., 2004).

Work Status: Research has found that breast cancer outcomes are more favorable when the disease is detected in its early stages, when it is more responsive to intervention (Hunt, 2016). Unemployed Hispanic/Latino women have less access to health coverage (Bird et al., 2016), which stops them from seeking medical care or taking measures to prevent breast cancer (Molina et al., 2013). Additionally, women who work at night seem to be more susceptible to breast cancer, perhaps as a side-effect of stress, fluctuations in circadian hormones, or metabolic changes (Pavlova, & Thompson, 2016).

Definition of Terms

Breast Cancer: A medical condition in which the cells in the breast have grown in an uncontrolled manner (CDC, 2017a). The type of breast cancer that the individual has acquired depends on which cells in the breast become cancerous (CDC, 2017a).

Early Detection Practice (EDP): A preventive measure that screens an individual for a particular condition, such as breast cancer (Abraído-Lanza et al., 2015).

Health Coverage: Health insurance coverage that incorporates the cost of an insured person's medical and surgical expenses over time (Felman, 2018).

Mammogram: A low-dose X-ray that enables examination and identification of changes in a woman's breast tissue and to identify breast cancer (Cancer.org, 2017).

Screening Practice: A medical tactic used in a population to identify the presence of an undiagnosed disease in a person who shows no signs or symptoms (Northwest Center for Public Health Practice [NCPHP], 2018). Screening practices can preserve individuals' lives and improve their health outcomes (NCPHP, 2018).

Socioeconomic Status (SES): This is defined as a person's level of wealth, income, education, and prestige (Boyce, 2008).

Assumptions

The basis of this quantitative study is an evaluation of secondary data, in which participants responded to questionnaires, surveys, and phone interviews. The data were collected and stored electronically in the HINTS. One assumption made in this study was that the instruments used to gather data were assumed to offer an absolute measure of the evaluated variables. In this case, the data collected have discerning meaning and association with breast cancer and mammography screenings. For this study, it was assumed that participants were honest in their responses about breast cancer screening, engagement in EDPs, use of treatments, and their overall health. This was asserted by keeping answers confidential and gaining participants' consent before releasing any information to the public. Another assumption made was that the health researcher was operating at a population-based level using distinct measures and interventions to obtain appropriate information and data from the population of interest.

It was assumed that a lack of health knowledge and negative attitude/perception influenced Hispanic/Latino women's utilization of breast cancer services (Molina et al., 2013). Many studies have documented information on associations regarding the likelihood of Hispanic/Latino women receiving breast cancer screening (Haile et al., 2016; Molina et al., 2012). The country of origin and access to health care were believed to have influenced breast cancer screening behavior among Hispanic/Latino women from various descendants (Haile et al., 2016).

Scope and Limitations

Scope

This quantitative study intended to develop an understanding of how screening, knowledge, and attitude/perceptions affected Hispanic/Latino women's health and welfare. The participants were Hispanic/Latino women who responded to the home-mailed survey questionnaires and participated in phone interviews. Further, the initial data collection utilized a Marketing Systems Group (MSG) system that provided random samples of addresses. These addresses included Hispanic/Latino families who lived in areas in high and low concentrations of the minority population. Addresses for people located in Central Appalachia were also provided (HINTS, 2014). The data were collected using survey questionnaires and focus interviews in order to enhance the accuracy of the response rates (HINTS, 2014). The questionnaires were mailed to the house of individuals with a Hispanic/Latino surname match (HINTS, 2014). The information from focus group interviews related to participants' knowledge of breast cancer and the use of screenings services, based on their voluntary consent (HINTS, 2014).

Limitations

There were some limitations associated with this quantitative study. According to Creswell (2009), researchers' bias imposes threats to research. The research performed in this study strived diligently to maintain objectivity in the data collection and analytical processes. However, to a certain extent, the researcher's personal understanding of the population of interest may influence data collection. The study did not fully reflect a large number of participants who engage in breast cancer screening practices. In turn, the study may reflect participants who had lowered awareness about breast cancer and did not get screened for breast cancer. Thus, the data gathered may not truly reflect those participants who had a strong understanding of breast cancer, or those who simply did not want to learn about this disease. These aspects made it challenging to determine the participants' actual likeliness of getting screened for breast cancer if presented with appropriate resources and information. Finally, accounting for missing data and incomplete questionnaires affected the overall assessment and assumption about the participants' overall knowledge and intent.

Delimitations

The delimitations of this study were:

- Participants were Hispanic/Latino women aged 25–55 years who belong to a different class status.
- Target entity to obtain secondary data were health care agencies, public health agencies, government agencies, and medical clinics.
- Data collection tools included electronic or home-mailed surveys, questionnaires, and personal interviews. Study variables were restricted to age, income, race, knowledge, attitude, perception, screening practice, and marital status.
- The study utilized the SCT to examine different variable constructs.

Significance, Summary, and Conclusions

Breast cancer cases are increasing in number and is a significant public health problem among Hispanic/Latino women, especially in the United States (Banegas et al., 2012). This disease has become the leading cause of death from malignancies in Hispanic/Latino women, irrespective of age, income, and class (Banegas et al., 2012). Moreover, various factors have made Hispanic/Latino women far less likely to be screened for breast cancer and obtain mammograms (Banegas et al., 2012; Molina et al., 2013). In this study, I examined how intrapersonal factors such as attitudes and beliefs have delayed Hispanic/Latino women’s participation in EDPs (Molina et al., 2013). In doing so, the ways personal beliefs and individual perceptions curtail women’s likelihood of seeking screenings are detailed. Significant delays were evident before Hispanic/Latino women obtained follow-up care after an abnormal mammogram test result (Chakraborty et al., 2014; Molina et al., 2013). Hence, I hypothesized that

Hispanic/Latino women require more knowledge of, and thus more instruction in, breast cancer and its preventive measures if they are to make better-informed and more appropriate decisions about their health (Chakraborty et al., 2014; Wells & Roetzheim, 2007). Overall, the objective of the study was to measure if there was a significant difference in salient variables, which included screening practices, attitudes, and knowledge regarding breast cancer among Hispanic/Latino women when compared to their NHW counterparts.

Previous studies have shown that a significant number of Hispanic/Latino women face social and cultural barriers that prevent them from seeking screening tests for breast cancer (Chakraborty et al., 2014; Wells & Roetzheim, 2007). This study identified some of these barriers, which could potentially be overcome by targeted approaches. However, it also advanced the state of practice by advising health care providers to work closely with Hispanic/Latino women to develop a best practice-based approach. Such an approach could help Hispanic/Latino women receive breast cancer screenings and adhere to treatment procedures through appropriate practices and defined informative measures (Chakraborty et al., 2014; Jerome-D’Emilia, 2015). Measures to help minimize the unequal burdens and disparity Hispanic/Latino women experience when obtaining information about breast cancer screening were identified in the study, and recommendations that Hispanic/Latino women can utilize were subsequently employed (Tabar et al., 2003; Breast Cancer Action, 2013).

Positive social change was consistent with the scope of this study, in which salient barriers implicated in breast cancer screening practices and mammography procedures for

Hispanic/Latino women were evaluated and highlighted (Molina et al., 2013; Wells & Roetzheim, 2007). Through joint efforts by public health professionals and health care providers, the results and findings of this study were used to achieve the desired outcomes by educating Hispanic/Latino women about this deadly form of cancer that could endanger their lives and welfare (Molina et al., 2013; Wells & Roetzheim, 2007).

Research has shown that low health literacy, negative attitudes, and low screening practice engagement were some of the foremost factors predisposing Hispanic/Latino women to breast cancer diagnosis at a fatal stage (Chakraborty et al., 2014; Molina et al., 2013). To date, most breast cancer patients of Hispanic/Latino descent were diagnosed at ages 31–60 with infiltrating, lobular, or mixed ductal-lobular breast cancer (Fernández et al., 2009). In this study, I propose a social change by highlighting the need to increase social support and to educate Hispanic/Latino women regarding the importance of openly communicating with their family and friends about their health condition (Hinzey, Gaudier-Diaz, Lustberg, & DeVries, 2016). Research has shown that insufficient social support was associated with a substantial rise in breast cancer-associated mortality in Hispanic/Latino women (Hinzey et al., 2016).

However, whether Hispanic/Latino women who were more acculturated to U.S. society were more inclined to obtain a mammogram or to undergo a clinical breast examination was not fully known (Chakraborty et al., 2014; Borrayo et al., 2009). Even so, in this study, I addressed various gaps in the literature pertaining to low breast cancer screening, practices, and negative attitudes among Hispanic/Latino women. The results clearly show that increased knowledge, education, EDP engagement, and health provider support are salient factors in improving Hispanic/Latino women’s awareness of breast cancer prevention measures and increased early diagnosis (Molina et al., 2013; Borrayo et al., 2009).

Continuing this exploration of the subject of this research project, a detailed review of the literature is provided in Section 1 that offers further information on Hispanic/Latino women’s attitude, screening practice, and behavior toward breast cancer. Section 2 incorporates the methods used in this study and offers perspicacity to the research questions and the study hypotheses, and Section 3 reviews the data analysis process and results obtained. Section 4 presents the study’s social change implications, results, discussion, conclusions, and proposed recommendations, and is followed by the references and appendices.

Literature Review

Breast cancer has become an increasingly worrisome health issue for Hispanic/Latino women (Luquis & Cruz, 2006; Jerome-D’Emilia, 2015). The likelihood of death from breast cancer could be significantly reduced if tumors were discovered in their early stages (Luquis & Cruz, 2006). However, in Hispanic/Latino women, breast cancer frequently goes undiscovered until the disease has reached a fatal stage (Luquis & Cruz, 2006; Yedjou et al., 2017). The various reasons suggested for this phenomenon include low levels of participation in recommended annual mammograms and cancer screenings and adoption of negative attitudes toward, and practices for, dealing with breast cancer (Luquis & Cruz, 2006; Salinas et al., 2018). Notably, Hispanic/Latino women generally receive little or minimal information about breast cancer and its consequences.

More than 40% of surveyed Hispanic/Latino women reported not having practiced self-examination to detect early breast cancer (Luquis & Cruz, 2006; Salinas et al., 2018). Some women reported that they were not capable of undertaking self-examination because it was a practice that made them embarrassed (Luquis & Cruz, 2006). This study investigated the extent to which attitude, behavior, and screening practice–related to breast cancer affected the life and health of Hispanic/Latino women. This section consists of a literature review and accompanying examination of the difference in Hispanic/Latino women's attitudes, behaviors, screening practices uptake, and knowledge of breast cancer.

Breast Cancer Occurrence in Hispanic/Latino Women

Occurrence

Over the years, breast cancer has become a salient public health issue of enormous proportion (Luquis & Cruz, 2006; Salinas et al., 2018). In the United States, an estimated 215,990 new cases of breast cancer were projected in 2004—a figure that has grown since then (Luquis and Cruz, 2006; Livaudais et al., 2010). Also in 2004, the American Cancer Society (ACS) predicted that approximately 40,100 people would die from breast cancer, accounting for nearly 14.7% of deaths in women (Luquis and Cruz, 2006). Breast cancer has become the second-leading cause of death among United States Hispanics/Latinos (Nuño et al., 2011). Since 2004, the incidence of breast cancer has increased dramatically in the United States and throughout the world (Hansen et al., 2005). Although Hispanic/Latino women had an almost 20% lower incidence of breast cancer when compared to the general U.S. population, breast cancer has continued to be the most frequent cancer diagnosis among Hispanic/Latino women (Power et al., 2018). In 2015, breast cancer accounted for an estimated 19,800 new cases among Hispanic/Latino women, and it represented 29% of all cancer diagnoses in this racial group (Power et al., 2018).

Nuño et al. (2011) observed that among Hispanic/Latino women, breast cancer was the most prevalent diagnosis, with an incidence of 90.2/100,000 and a mortality rate of 15.6/100,000. Notably, the Hispanic/Latino women population has experienced high growth, numbering 55.4 million in 2014—17.4% of the entire United States population (Krogstad & Lopez, 2015). As the Hispanic/Latino population continues to increase, women from this group have continued to be disproportionally affected by breast cancer (Fernández et al., 2009). As Figure 1 illustrates, breast cancer rates among Hispanic subgroups in the United States show that Hispanic/Latino women residing within the United States had a higher incidence of breast cancer when compared to women from their native country (Power et al., 2018). The database from 2012 shows that Hispanic/Latino women who resided in the United States had a higher incidence rate of breast cancer than Hispanic/Latino women who lived in the country of their ethnic heritage (Powers et al., 2018). Such a difference was unusually high in the Mexican-American population whose breast cancer incidence was more than twice as high than in the Mexican population (Power et al., 2018).

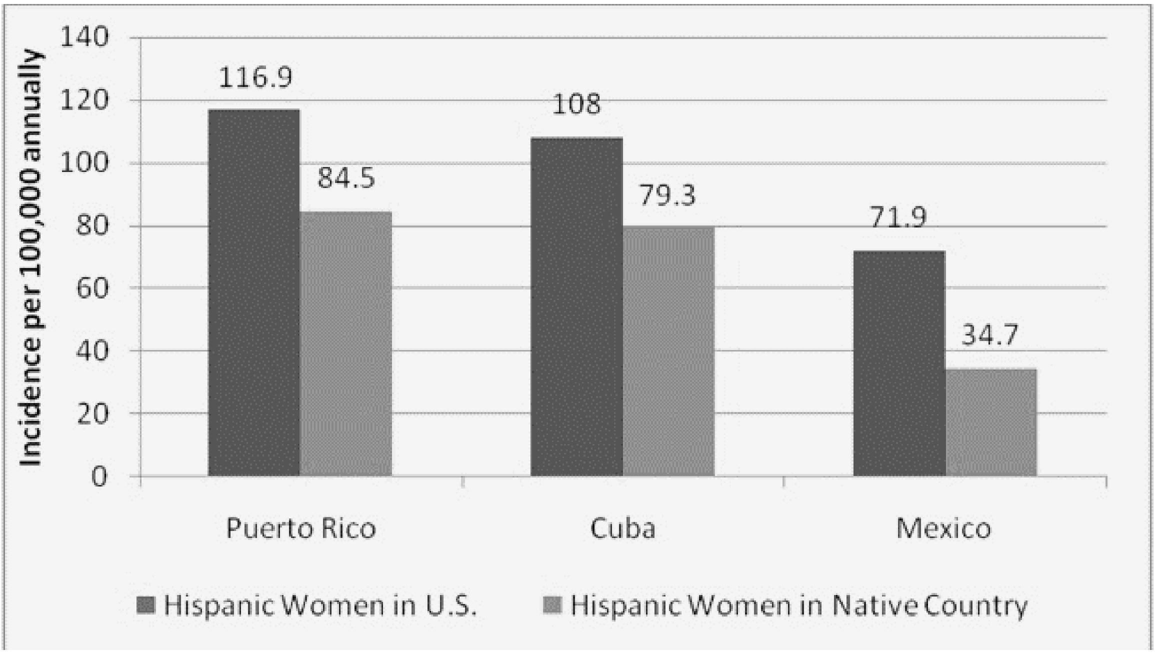

Figure 1. *Incidence of breast cancer among Hispanic/Latino women residing in the United States compared to their native country*

Fernández et al. (2009) investigated the prevalence and mortality rates of breast cancer. While they found them to be much lower among Hispanic/Latino women than among NHWs, they also found that Hispanic/Latino women had a higher rate of diagnosis at a fatal stage (Fernández et al., 2009; Luquis & Cruz, 2006). Nuño et al. (2011) similarly observed that breast tumors were likely to be larger in Hispanic/Latino women, and their breast cancer survival rate of under five years was lower than the rate for NHWs (Molina et al., 2013).

Previous research had supported the idea that breast cancer outcomes were likely to be more favorable when the condition was diagnosed at an earlier stage, as the disease was more amenable to early intervention and treatment (Hunt, 2016). However, such an outcome was rare in the Hispanic/Latino women population (Hunt, 2016; Molina et al., 2013). Accordingly, an assessment to identify why Hispanic/Latino women were diagnosed with breast cancer after the disease had reached a fatal stage was needed (Hunt, 2016). Little consistent prevalence and mortality data were available with which to determine the extent to which Hispanic/Latino women were affected by breast cancer. However, further consideration of even these limited data allowed for the targeting of essential programmatic and policy interventions (Hunt, 2016).

Hispanic/Latino Women's Screening Practice and Attitude

Cancer screenings have significantly reduced the mortality rates associated with colon, cervical, and breast cancers (Science Daily, 2015; Mojica et al., 2017). During the past several decades, despite considerable advancements in screening and treatment, breast cancer has remained a significant health issue among Hispanic/Latino women (Austin, Ahmad, McNally, & Stewart, 2002). Notably, cancer screening rates, especially for breast cancer among Hispanic/Latino women, were much lower than among NHWs (Austin et al., 2002; Mojica et al., 2017). Although breast cancer poses a grave threat to Hispanic/Latino women's health, these women had rarely undergone mammogram screening (Mojica et al., 2017). Indeed, many Hispanic/Latino women have never had a mammogram (Austin et al., 2002; Mojica et al., 2017).

Various studies found that Hispanic/Latino women had a relatively low incidence of breast cancer; yet, these individuals were at higher risk of being diagnosed with larger tumors or metastatic breast cancer (Mojica et al., 2017). As Hunt (2016) noted, breast cancer is now the most commonly diagnosed cancer in Hispanic/Latino women, a phenomenon related to their lowered likelihood of being screened for this disease.

However, research has also shown that screening procedures such as mammography tests have promoted diagnosis of breast cancer at an early stage, allowing prevention even before a lump can be palpated or identified during a clinical breast evaluation (Alexandraki & Mooradian, 2010). Unfortunately, Hispanic/Latino women's generally lower susceptibility to breast cancer has influenced their attitude toward breast cancer screening, which is made worse by their limited access to physician recommendations and community outreach programs for engaging in EDPs (Alexandraki & Mooradian, 2010; Austin et al., 2002).

Fernández et al. (2009) explained that inadequate breast cancer screening practices among Hispanic/Latino women resulted from psychosocial factors that involved a lack of knowledge about breast cancer and its screening processes, as well as fatalistic attitudes toward health. Additional psychological factors such as fear of cancer, invasive procedures, pain, religious or spiritual beliefs, language barriers, perceptions of discrimination, embarrassment, and partner disapproval also influenced Hispanic/Latino women's attitudes toward the use of cancer screening services (Fernández et al., 2009). Although these women tend to have poorer breast cancer survival rates, they are also less likely to be screened for breast cancer or regularly obtain a mammogram (Fernández et al., 2009). Indeed, Hispanic/Latino women were notably less aware of the consequences and outcomes of breast cancer, despite being disproportionately diagnosed with late-stage breast cancer (Fernández et al., 2009). Although breast cancer continues to be prevalent in Hispanic/Latino women, they remained less likely to have engaged in mammography screening (Chakraborty et al., 2014; Salazar, 1996).

Each year, the rates of breast cancer incidence and diagnosis have grown sharply in Hispanic/Latino women of various descent (Castañeda et al., 2014; Luquis et al., 2016). Consequently, these individuals often receive late-stage breast cancer diagnoses (Castañeda et al., 2014); an outcome attributed to these women's lower rates of mammography screening. Research has reported a strong association between regular mammography tests and lowered risk of acquiring invasive breast cancer (Castañeda et al., 2014). However, in the United States, Hispanic/Latino women's access to health and medical services is significantly constrained (Castañeda et al., 2014; NCI, 2015). The current literature shows that Hispanic/Latino women are highly unlikely to obtain mammograms consistently—a finding that positively correlates with Hispanic/Latino women's higher rates of breast cancer mortality compared to their counterparts from other racial and ethnic groups (Paz & Massey, 2016). Hispanic/Latino women were more likely to have acquired breast cancer than NHWs, yet they continue to exhibit less urgency about seeking annual breast cancer screening (Paz & Massey, 2016).

Promoting breast cancer screening among Hispanic/Latino women was shown to be the best approach to help improve breast cancer diagnoses in this group of women (Davis et al., 2015). Research demonstrates that despite Hispanic/Latino women's use of mammography services and clinical breast examination practices, these women were slow to adopt these practices (Davis et al., 2015). Studies have reported that Hispanic/Latino women, especially older women, were usually unaware that they were vulnerable to a higher risk of breast cancer, or that mammogram tests were required even in the absence of symptoms (Davis et al., 2015). Moreover, breast cancer was shown to be less likely diagnosed in Hispanic/Latino women at the early stages compared to NHWs (Davis et al., 2015). Studies have reported that culturally sensitive breast cancer promotion programs to promote early detection practices were not widely tailored for women from the Hispanic/Latino race (Oliver-Vázquez, Sánchez-Ayéndez, Suárez-Pérez, Vélez-Almodóvar, & Arroyo-Calderón, 2002). Inadequate culturally sensitive breast cancer promotion programs also prevented Hispanic/Latino women from uptaking and complying with the recommended guidelines for breast cancer screening (Oliver-Vázquez et al., 2002). As a result, Hispanic/Latino women experienced difficulties in navigating and utilizing existing breast cancer promotion programs (Oliver-Vázquez et al., 2002). The main concern is whether Hispanic/Latino women are engaged with or interested in getting screened for breast cancer. Alternatively, the inability to navigate screening programs prevents Hispanic/Latino women from using breast screening tests

Attitude

Health and well-being for Hispanic/Latino women, or women of any given racial group, involves more than just medical care. It is essential to ascertain the individual's perceptions and attitudes toward breast cancer (Ramos, Correa &, Trinidad, 2016). Hispanic/Latino women often face salient barriers when wishing to obtain optimal health (Ramos et al., 2016). Specifically, barriers such as misconceived attitudes and cynical views about breast cancer screening and diagnosis influence how frequently and openly Hispanic/Latino women undertake the required mammogram test (Crookes et al., 2016; Ramos et al., 2016). While the survey findings reported that some Hispanic/Latino women perceived breast cancer as a grave health issue and were fearful about it, these individuals recognized and felt there were few calls to action to improve health, given the limited availability of screening services.

Some studies have emphasized breast cancer's prominence as an increasingly problematic health issue among Hispanic/Latino women, even though these women tend to have a lower incidence of breast cancer than NHWs (Molina et al., 2013; Bird et al., 2010). As noted earlier, Hispanic/Latino women's survival rates are lower than that of NHWs (Molina et al., 2013). Thus, even though Hispanic/Latino women succumbed to breast cancer, they were far less inclined to take preventive measures (Molina et al., 2013; Bird et al., 2010). As a result, their rate of breast cancer mortality was no less than for NHWs (Molina et al., 2013; Bird et al., 2010). Importantly, Hispanic/Latino women's attitudes and perceptions regarding mammograms influence their likelihood of seeking one, and this reluctance affects the nature of their breast cancer diagnoses and ultimate outcomes (Molina et al., 2013). Bird et al. (2010) and Salazar (1996) describe a family history of breast cancer as an important risk factor that influenced Hispanic/Latino women's likelihood of being screened for this disease. If their perceived risk was low, they were less likely to seek regular breast cancer screening or engage in EDPs (Bird et al., 2010; Molina et al., 2013).

Both Bird et al. (2010) and Salazar (1996) argue that family history greatly influenced a woman's lifetime chance of acquiring breast cancer, as well as her risk of acquiring this disease at a premature age. Even though breast cancer was the primary cause of cancer-related deaths among Hispanics/Latino women, factors such as personal attitude and low health literacy have continued to affect women's likelihood of seeking breast cancer services (Fred Hutchinson Cancer Research Center, 2017). As Chakraborty et al. (2014) explain, Hispanic/Latino women more often presented with larger mass tumors when diagnosed with breast cancer, which largely reflects their attitude and perceptions about mammography tests (Chakraborty et al., 2014; Salazar, 1996). Thus, factors such as attitude and behavior greatly influenced Hispanic/Latino women's likelihood of undergoing a mammogram, and many studies have investigated the extent to which notions of personal risk and fear of screening prevents these individuals from engaging in EDPs (Chakraborty et al., 2014; Torturer-Luna et al., 1995).

As women belonging to Hispanic/Latino populations continue to be diagnosed with breast cancer, their cultural and social beliefs have dissuaded and even prevented them from seeking preventive measures such as mammograms (Chakraborty et al., 2014). Even a decline in breast cancer survival rates, along with a low QoL, did not significantly change these women's attitudes to screenings (Ashing-Giwa et al., 2004; Salazar, 1996). Factors such as social concerns, embarrassment, societal influences, cost, and pain all played key roles by instilling a negative perception of breast cancer screening in these women (Chakraborty et al., 2014; Tortolero-Luna et al., 1995). Alexandraki and Mooradian (2010) and Consedine et al. (2004) explain that the fear and embarrassment associated with these procedures and their results, coupled with language difficulties, lack of time, and perceived pain during mammography tests, dramatically affects patients' willingness to seek EDPs and breast cancer services. Indeed, concerns about radiation exposure and beliefs about sensitivity to breast cancer were some of the main barriers to screening among this group (Alexandraki & Mooradian, 2010; Consedine et al., 2004).

Research has indicated that Hispanic/Latino women felt less at risk of being diagnosed with cancer because they often perceived themselves as being in good health. However, they were, in fact, more likely to die from breast cancer when they do develop the disease (Alexandraki & Mooradian, 2010; Consedine eta al., 2004). Such women were, individually, at risk of under-screening for breast cancer. Consequently, late detection was widespread among this group, which exacerbates these women's risk of dying after diagnosis (Teran, Baezconde-Garbanati, Marquez, Castellanos, & Belkic, 2007). Women in this population often perceived a lack of breast cancer screening programs that promoted the participation of wellness and involvement of others at a significant level (Alexandraki & Mooradian, 2010). The language barrier and the fear of humiliation were further obstacles to regular checkups (Lara, Gamboa, Kahramanian, Morales, & Hayes Bautista, 2005).

The majority of breast cancer deaths among Hispanic/Latino women were caused by late-stage metastatic detection (Borrayo & Guarnaccia, 2000). These women's consistent use of screening services was heavily dependent on their individual health beliefs and their motivation to seek out such services. Specifically, high levels of breast cancer mortality rates had manifested among those who had underused these essential procedures (Borrayo & Guarnaccia, 2000). This situation could be substantially improved if these women used such services regularly, as women from other ethnic groups generally did (Borrayo & Guarnaccia, 2000). Instead, their attitudes and views toward breast cancer had limited their acceptance of these procedures (Borrayo & Guarnaccia, 2000; Lara et al., 2005).

The construct of attitudes, perceptions, and fear influence how frequently Hispanic/Latino women utilize breast cancer services (Bakemeier, Krebs, Murphy, Shen, & Ryals, 1995). More specifically, researchers have associated Hispanic/Latino women with culturally based embarrassment and feelings of hopeless when speaking about mammography tests or breast cancer diagnoses (Bakemeier et al., 1995). Such attitudinal constructs of fear, embarrassment, and hopelessness discourage Hispanic/Latino women from speaking freely about breast cancer with healthcare professionals and makes them less likely to undertake a clinical breast evaluation exam (Bakemeier et al., 1995).

Little is known about Hispanic/Latino women breast cancer survivors' social networks or their perceived social support (Crookes et al., 2016). Indeed, Hispanic/Latino breast cancer survivors, and those newly diagnosed with breast cancer, often perceived they lack the necessary social support system and network to help live with their condition (Crookes et al., 2016). As a result, Hispanic/Latino women who were affected by breast cancer became increasingly afraid and depressed (Crookes et al., 2016). These sentiments from breast cancer survivors among the Hispanic/Latino population made them less hopeful and desiring of a healthy lifestyle (Crookes et al., 2016). Generally speaking, the attitudinal construct played a significant role in shaping Hispanic/Latino women's outlook and perceptions regarding their breast cancer diagnosis and dilemma (Crookes et al., 2016).

Health Literacy and Knowledge

Health literacy is defined as the degree to which people can receive, process, and comprehend basic health information (U.S. Department of Health and Human Services, n.d.). While many studies have shown that Hispanic/Latino women have a sound understanding and knowledge of cancer (Teran et al., 2007), recent papers have reported that they were less inclined to comprehend the recommended follow-up measures (Molina et al., 2013; Flynn et al., 2011). Notably, Molina et al. (2013) and Ramirez et al. (2000) observed that these women were less likely to accurately describe and report their follow-up care after receiving abnormal mammogram results and breast cancer treatment.

Linguistic barriers and health literacy levels contributed significantly to the lack of understanding in this area (Molina et al., 2013; Ramirez et al., 2000). Although such patients were reportedly highly dissatisfied with their diagnosis and treatment decisions, they did not make the necessary effort to better understand the options available to them (Molina et al., 2013; Morgan, Park, & Cortes, 1995). Sunil et al. (2014) explained that health knowledge, the source of health information, and susceptibility were statistically significant in predicting clinical breast evaluation among Hispanic/Latino women. Without the appropriate working knowledge about breast cancer or a reliable source of health information, Hispanic/Latino women were more likely to make poor decisions about their overall health (Sunil et al., 2014).

According to some studies, language and communication barriers were primary contributors to the high rate of breast cancer deaths among Hispanic/Latino women (Banegas et al., 2012; Molina et al., 2013). However, the same authors also argued that factors such as lack of breast cancer awareness and timely adherence to recommended guidelines were critical to the low survival rates in this demographic. Low health literacy and awareness had caused this group to experience inequalities in breast cancer treatment options, making its members more vulnerable to sustained poor health and experience poor treatment choices (Molina et al., 2013). Superior health knowledge led to favorable outcomes for some Hispanic/Latino women, whereas insufficient knowledge caused others to receive late-stage diagnoses and inferior treatment options (Banegas et al., 2012; Molina et al., 2013). Patients and breast cancer survivors suffered a lower QoL and were less aware of how to make appropriate decisions about their prognosis and treatment options (Banegas et al., 2012; Molina et al., 2013).

Banegas et al. (2012) and Kratzke, Amatya, and Vilchis (2015) stated that numerous studies showed that for women of low SES among the Hispanic/Latino community, reduced knowledge did not affect their capacity to make health decisions regarding their welfare. However, Molina et al. (2013) argued that as this population increased, the women who tend to be of low SES were more likely to acquire metastatic breast cancer at a very young age. Such women were less likely to have navigated the complex U.S. health care system in search of medical care, including breast cancer treatments (Molina et al., 2013; Kratzke et al., 2015). Moreover, low health knowledge prevented these women from performing breast self-examination, because they were not sufficiently educated to carry out such a procedure (Banegas et al., 2012; Kratzke et al., 2015).

Regardless of their SES, Hispanic/Latino women often lacked adequate and correct information regarding their prognosis and the causation of breast cancer (Martínez et al., 2017; Powers et al., 2018). As other researchers have observed, these women often felt less motivated to undertake consistent cancer screening, based on their perception of being less vulnerable to breast cancer (Molina et al., 2013; Martínez et al., 2017). At the same time, these individuals often had poor knowledge or understanding of the stage of their condition (Molina et al., 2013). What differentiates the current study from others is that the main aim was to investigate why women from the Hispanic/Latino population lack awareness and knowledge of breast cancer and underuse screening services (Molina et al., 2013; Martinez et al., 2017).

Research has attested that inadequate/marginal functional health knowledge was heavily associated with lower mammography screening among women from the Hispanic/Latino race (Pagán et al., 2012). Studies have emphasized the need for comprehensive improvements in breast cancer controls within the Hispanic/Latino population via advances in health literacy or tailored programs as ways to help women from this racial group navigate the local health system (Pagán et al., 2012). The National Assessment of Adult Literacy reported that population subgroups, especially Hispanic/Latino women and some men, along with adults over 65, were significantly more prone to score in the “below basic” category for prose, document, and quantitative literacy (Garbers, Schmitt, Rappa, & Chiasson, 2010). Further, Garbers et al. (2010) explained that the National Assessment of Adult Literacy reported Hispanic/Latino women with low health literacy about breast cancer experienced poor health outcomes in breast cancer because they were not utilizing health care services consistently. This study concurs with other literature that Hispanic/Latino women with low functional health literacy were less inclined to begin breast cancer screening in a manner consistent with national screening guidelines (Garbers et al., 2010).

In conclusion, risk assessment measures and greater awareness of and knowledge about breast cancer are pivotal in reducing the prognosis, incidence, prevalence, and mortality of this condition among Hispanic/Latino women (Chakraborty et al., 2014). These individuals are far less knowledgeable about breast cancer in general, including the degree of their prognosis and treatment options (Molina et al., 2013; DeSantis, Ma, Bryan, & Jemal, 2014).

Section 2: Research Design and Data Collection

Introduction

In this secondary data analysis study, I measured the influence of breast cancer knowledge, attitudes, and screening practices among Hispanic/Latino women. This section reviews the methods and procedures used in my quantitative study. The subsections address the research design and rationale and identify the sampling procedures, instrumentations, and operationalization measures.

Research Design and Rationale

In this quantitative study, I employed an inferential analysis and aimed to assess Hispanic/Latino women's attitudes toward and knowledge about breast cancer and screening practices. I selected a cross-sectional design to evaluate the study variables because it was appropriate for measuring the prevalence of breast cancer among Hispanic/Latino women. The independent variable evaluated was race; that is, Hispanic/Latino women and other races. The dependent variables were the measures of knowledge, attitude, and screening practice, and the covariate variables were SES factors (age, marital status, educational level, economic level, working status). These selected independent, dependent and covariate variables were measured in Hispanic/Latino women, and also measured in women of other races to enable comparisons between Hispanic/Latino women and NHW women.

Methodology

Population

The target population of this study was Hispanic/Latino women aged 25–60 years, a demographic described as having low levels of participation in EDPs (ACS, n.d.). Notably, Chakraborty et al. (2014) stated that members of this group were more likely to be affected by advanced-stage breast cancer than NHWs of comparable age groups. Although the target population size was not known, it could be computed because secondary datasets were used through various descriptive means.

Sampling and Sampling Procedure

The sampling procedures and techniques used to collect the original data employed numerous measures, including a database of addresses used by MSG to distribute random address samples (NCI, 2017). Various means, such as mail, questionnaires, surveys, and inbound telephone calls, were used for data collection (NCI, 2017). The database system randomly chose participants using their home addresses. To illustrate a closer association of pivotal variables, a systematic sampling strategy was used to enable broad evaluation of the target subjects.

Although the total population size was 28,083, only 3,603 persons responded to the survey and questionnaire inquiries, forming the actual population for the study. A sample size calculator was used to choose a confidence level of 95% with a 5% margin of error. The computed sample size was 348. The effect size was set at 0.15, alpha at 0.05, and power at 0.95. Using such an alpha setting, the identified result should occur by chance only 5% of the time when performing the statistical tests in question (Elston &

Johnson, 2008). The data values and response rate obtained by the survey questionnaire allowed computation of the study's sample size.

Data Collection

Data were initially collected from October 2012 to January 2013, and released in 2013 (HINTS, 2014). Secondary data from participants were collected through numerous recruitment measures, including home-mailed survey questionnaires and phone interviews (NCI, 2017). After scanning the data, it was cleaned using customized ranges and edited for logical consistency (NCI, 2017). The predetermined screening ensured data integrity, and editing rules identified and recoded nonresponses and indeterminate responses (NCI, 2017). Finally, missing data values were recoded for certain responses to questions that emphasized a forced-choice response form and filtered questions for which responses to subsequent questions indicated that a specific response was appropriate (NCI, 2017).

Instrumentation and Operationalization of Constructs

The NCI was responsible for devising and administering the 2014 HINTS to collect pertinent breast cancer health information from the Hispanic/Latino population. The cycles of these surveys and questionnaires were conducted between October 2012 and January 2013, and the data released in 2013 (HINTS, 2014). The attached forms in Appendix A and Appendix B contains a letter conveying the developer's approval to use instruments such as surveys and questionnaires. Although the HINTS offered no published reliability and validity values (NCI, 2017), the developer provided variables relevant to what I was attempting to measure and achieve in this study (HINTS, 2014).

Every few years since 2003, the NCI administers the HINTS; in 2010, it was administered to the Hispanic/Latino populace (HINTS, 2014). Hence, the survey instrument established validity and reliability in this sample, as the participants were randomly chosen from distinct areas to represent the target population accurately (HINTS, 2014). The same survey, under similar conditions, was given to target samples from different areas to ensure consistency in their responses (HINTS, 2014).

To evaluate the basis of development regarding the instrument for this study, datasets were collected via surveys and questionnaires, including four mail-mode data cycles over three years (HINTS, 2014). Devised based on cognitive testing, the instruments were known as Cycle 2 instruments and were printed in Spanish and English to increase the participation of Spanish-speaking respondents (HINTS, 2014). The Cycle 1 instruments were devised and administered in batches using three methods: targeting linguistically isolated areas, making Hispanic surname matches, and considering respondents' requests (HINTS, 2014). Hence, an experimental study was performed whereby mailed surveys and questionnaires were categorized into experimental and control groups (HINTS, 2014). The Spanish and English surveys mailed to households with Spanish surnames formed the control treatment group, whereas the two questionnaires mailed to all households formed the experimental treatment group (HINTS, 2014).

In this quantitative study, the instruments used to collect the data provided evidence of reliability via an alternative method. Specifically, surveys and questionnaires were mailed to participants, who were assigned to treatment and control groups (HINTS, 2014). Participants who belonged to a Hispanic/Latino household received the English and Spanish forms, whereas participants from other non-Hispanic households received one form (HINTS, 2014). While the secondary data provided no distinct discussion regarding the validity and reliability scores of the instrument, the HINTS data guidebook did identify how the instruments were calibrated and manipulated to increase participants' response rates and compensate for nonresponse rate. Study consistency was maintained by considering that the difficulty of the surveys and questionnaires were the same for all participants irrespective of the language spoken in a household (HINTS, 2014). The survey and questionnaire were developed and framed in distinct ways to measure the consistency of the t participants' responses.

In this quantitative study, the instruments consistently showed evidence of validity and were capable of measuring and eliciting the pertinent health information that they were designed to obtain (HINTS, 2014). To determine the eligibility of the HINTS 4 Cycle questionnaires, participants' completed questionnaires were designated as any questionnaires in which more than 80% of the required questions were answered in sections A and B (HINTS, 2014). Only 48 questionnaires were partially completed (HINTS, 2014). The partially completed and completely answered questionnaires were both sustained and retained (HINTS, 2014). Questionnaires in which fewer than 50% of the required questions were answered in sections A and B were designated as incomplete and discarded (HINTS, 2014). A 30.11% proportion of Hispanic/Latino households fully completed the home-mailed questionnaires (HINTS, 2014).

Surveys and questionnaires were written in both Spanish and English with a view to obtaining meaningful breast cancer–related information from Hispanic/Latino households (HINTS, 2014). In my quantitative study, evidence of predictive validity was shown. The study illustrates that variables such as age, income, education, and race may influence whether females from such households were screened for breast cancer (HINTS, 2014). Overall, the survey and questionnaire instruments were sufficient to answer the research questions because they were capable of measuring variables of interest that pertained to the research questions.

Although data were collected via mail, phone, and face-to-face discussion, the surveys and questionnaires were the primary means of data collection for this quantitative study. These data were then recorded on paper (HINTS, 2014). The surveys and questionnaires were reviewed individually by research experts, and the data transferred to the System Management Server (SMS) database (HINTS, 2014). Then, an MSG database was used to obtain random samples of addresses to mail surveys to and phone numbers to call and send text messages to, inquiring about Hispanic/Latino women’s frequency of undergoing mammograms, uptake of screening practices, and knowledge of breast cancer (HINTS, 2014). The data from the questionnaires were scanned into the SMS database, where they were verified, cleaned, edited, and assessed for accuracy (HINTS, 2014). This database was suitable for the study because it contained quality assurance measures with which to determine the accuracy of the information provided by the respondents regarding breast cancer (HINTS, 2014). The questions were structured in a way that increased the participants’ response rate (HINTS, 2014).

The revised surveys and questionnaires were scanned through the high-speed TeleForm scanner to record the responses (HINTS, 2014). The scanner analyzed the form of image files and extracted data following the HINTS Cycle 2 rules established before the study began (HINTS, 2014). The dataset included participants from the original data. In these cases, the salient demographic information included allowed participants to reply to questions regarding their health, screening practice, knowledge, age, race, income, behavioral risks, and work status. The survey and questionnaire contained multiple question types to increase the response rate.

Operationalization of Variables

The variable of attitude was operationally defined as how Hispanic/Latino women arrived at their perceptions of and attitudes toward breast cancer. As presented in Table 2, the variable of attitude was measured by assessing Hispanic/Latino perception; specifically, their frustration regarding their recent search for information about breast cancer (NIH, 2017). The construct of perception was also measured by assessing if Hispanic/Latino women perceived the search for breast cancer resources and treatment options to be extremely overwhelming. Attitude was dichotomized by identifying those who were extremely frustrated by the effort to obtain cancer information and those not frustrated in obtaining cancer information. Negative attitude association toward breast cancer contributed significantly to the high breast cancer disparities that exist in Hispanic/Latino women compared to NHW women (Jadav, Rajan, Abughosh, & Sansgiry, 2015; Ramirez et al., 2000). In turn, the construct of perception was dichotomized by identifying if Hispanic/Latino women perceived the search for breast cancer resource and treatment options to be strongly overwhelming or somewhat overwhelming.

Hispanic/Latino women of low SES were more likely to have experienced poor QoL if diagnosed with breast cancer compared to NHW women. Moreover, the variable of race was operationalized by determining if women from a particular ethnic group, specifically Hispanic/Latino women (who share the same physical and social qualities with women from other races), have ever looked for information about breast cancer from any source. This variable was dichotomized by recognizing if Hispanic/Latino women looked for breast cancer information infrequently or not at all, while compared knowledge was defined as participants' level of understanding of breast cancer screening and the disease in general. Low levels of health knowledge regarding breast cancer have prevented Hispanic/Latino women aged 50 and over from receiving mammograms every one to two years (Livaudais et al., 2010). Such a lack of knowledge was also likely to influence screening and preventive behaviors in Hispanic/Latino women in general (Livaudais et al., 2010). Hence, in this study, the variable of knowledge was measured and coded as "was breast cancer too hard to be understood" and "how much do you do agree or disagree with particular statements about breast cancer" (NIH, 2017). As shown in Table 2, knowledge was measured by assessing the question "in the past 12 months, how often did your health professional explain things in a way you could understand?" (NIH, 2017). The variable of knowledge was dichotomized by exploring if breast cancer knowledge was too hard to be understood or not understandable at all (NIH, 2017).

The variable of age was operationalized as the individual length and amount of time of existence in a distinct age group. Because breast cancer diagnosis has become extremely widespread among Hispanic/Latino women aged 18–64, breast cancer mortality becomes greater as these women get older (Hunt, 2016). Age was measured in this study as per individual Hispanic/Latino women who spanned the17–64 age group and were at risk for breast cancer or diagnosed with the disease (NIH, 2017). The variable of age was dichotomized by measuring Hispanic/Latino women who were under or over 64 years of age.

The operational variable of screening practice was defined as Hispanic/Latino women's participation in health measures to detect the possible presence of an undiagnosed case of breast cancer. These women were less likely to be screened for breast cancer than their NHW counterparts, and they often delayed undergoing annual mammograms (Molina et al., 2013). These individuals did not demonstrate consistent breast cancer screening practices and preventive task measures (Molina et al., 2013). Hence, the variable of screening practice was operationalized by examining Hispanic/Latino women who pursued cancer checkups and mainly getting screened for breast cancer. Specifically, the question, "have you ever received instructions from a doctor or other health care professional about your return or after completing your cancer screening or cancer treatment?" was explored. In turn, screening practice was dichotomized by assessing Hispanic/Latino women who completed breast cancer screening regularly, sometimes, or did not undertake screening at all based on their health resources.

Further, the variable of work status (income) was operationalized to measure the Hispanic/Latino participants living in an employed or unemployed household who searched for information about breast cancer. Intuitively, work status was dichotomized by signifying Hispanic/Latino women as employed or unemployed. Hispanic/Latino women deemed to be unemployed were not insured, despite having access to health insurance (Abraído-Lanza, Chao, & Gammon, 2004). Similarly, those who were employed were less likely to be insured and did not have a regular and consistent healthcare provider (Abraído-Lanza et al., 2004). Finally, the variable of marital status was operationalized and coded for participants who were determined to be single, married, dating, engaged, or widowed in assessing information about breast cancer via the internet or through their health provider. In turn, this variable was dichotomized by deducing single or non-single Hispanic/Latino women who may have accessed or not accessed information on breast cancer. Hispanic/Latino women who were married experienced higher rates of breast cancer diagnosis at a fatal stage as a result of cultural and language barriers (Torres, Erwin, Trevino, & Jandorf, 2013). Meanwhile, single women appeared to experience long delays in diagnosis for similar reasons (Torres et al., 2013).

Each variable was measured based on the manipulation of instruments used to obtain the data. Specifically, variables were sorted into distinct categories, and discrete statistical tests were used to measure their correlation to the research questions and hypotheses of interest (Frankfort-Nachmias et al., 2015; HINTS, 2014). The variables/scales were calculated based on the instrument used to obtain the participants’ responses. A dichotomous scoring system was used to assign scores to the variables measured; the score represented the target group’s level of response to the questionnaire and likelihood of engaging in preventive breast cancer health measures (HINTS, 2014). A summary of the research questions, variables, and the statistical tests are presented in table 1.

Data Analysis Plan

The data analysis plan defines the research questions as well as the variables and the statistical tests employed to measure these variables. It also defines and explains the measures taken to operationalize each variable.

Research Question 1(RQ1): Is there a difference in knowledge of breast cancer among Hispanic/Latino and women of other races, after controlling for SES factors (age, marital status, educational level, economic level, and working status)?

RQ1 independent variable: Race, and other races

RQ1 dependent variable: Knowledge

RQ1 covariate: SES status (age, marital status, educational level)

RQ1 statistical tests: Odds ratio test with confidence interval analysis; logistic regression test to measure the dependent variable knowledge while controlling for SES factors

Research Question 2 (RQ2): Is there a difference in attitude toward/perception of breast cancer among Hispanic/Latino women and women of other races, after controlling for SES factors (age, marital status, educational level, economic level, and working status)?

RQ2 independent variable: Race, and other races

RQ2 dependent variable: Attitude/perceptions

RQ2 covariate: SES status (age, marital status, educational level, economic level, working status)

RQ2 statistical test: Odds ratio test with confidence interval analysis, logistic regression test

Research Question 3 (RQ3): Is there a difference in breast cancer screening practices among Hispanic/Latino women and women of other races, after controlling for SES factors (age, marital status, educational level, economic level, and working status)?

RQ3 independent variable: Race, and other races

RQ3 dependent variable: Race, and other races

RQ3 covariate: Odds ratio test with confidence interval analysis, logistic regression test

Definition of Variables Operationalization Measures

Knowledge: The variable of knowledge was measured and coded as “Breast cancer is too hard to be understood” and “How much did you agree or disagree with particular statements about breast cancer?” Also, it was measured by assessing the question “In the past 12 months, how often did your health professional explain things in a way you could easily understand?” Knowledge was dichotomized by exploring whether breast cancer knowledge was too hard to be understood or not understandable at all.

Attitude/Perceptions.: The variable of attitude was measured by assessing Hispanic/Latino perception, more so their frustration regarding their recent search for information about breast cancer. The construct of perception was measured by assessing if Hispanic/Latino women perceive the search for breast cancer resource and treatment options to be extremely overwhelming. Attitude was dichotomized by identifying those who were extremely frustrated by the effort to obtain cancer information or not frustrated in obtaining cancer information. The construct of perception was dichotomized by identifying if Hispanic/Latino women perceive the search for breast resource and treatment options to be strongly overwhelming or somewhat overwhelming.

Screening Practices: The variable screening practice was operationalized by examining Hispanic/Latino women that had pursued cancer checkups (notably those that got screened for breast cancer). By measuring "have you ever received instructions from a doctor or other health care professional about your return or after completing your cancer screening or cancer treatment?" Screening practice was dichotomized by assessing Hispanic/Latino women that undertake breast cancer screening regularly, sometimes, or don't undertake to screen at all based upon their health resources.

Race. The variable of race was operationalized by discovering whether women from a particular ethnic group, specifically Hispanic/Latino women (who share physical and social qualities with women from other races), had ever sought information about breast cancer from any source. Thus this variable was dichotomized by discovering whether Hispanic/Latino women sought breast cancer–related information infrequently compared with women from other races or not at all.

Age. The variable of age was measured in this study in terms of individual Hispanic/Latino women aged 25–64 years who were at risk for breast cancer or had been diagnosed with the disease. This variable was dichotomized by measuring Hispanic/Latino women who

Work status/income. Intuitively, the variable of work status (income) was operationalized by measuring the Hispanic/Latino participants living in an employed or unemployed household who searched for information about breast cancer. Intuitively, work status was dichotomized by signifying Hispanic/Latino women as being employed or unemployed, with an income or no income.

Marital status. The variable of marital status was measured and coded for participants who were single, married, dating, engaged, or widowed and assessing information about breast cancer via the internet or through their health provider. In turn, this variable was dichotomized by deducing single nor nonsingle Hispanic/Latino women who might or might not access information pertaining to breast cancer.

SPSS 25.0 software was used to measure the three distinct research question variables and addressed their associated hypotheses. After being scanned, the data were cleaned using a customized range and edited for logical consistency (NCI, 2017). The predetermined screening ensured data integrity, and editing rules were devised to identify and recode nonresponses and indeterminate responses (NCI, 2017). Finally, missing data values were recoded for certain responses to questions that emphasized a forced-choice response form and filter questions where the responses to succeeding questions suggested that a specific response was appropriate (NCI, 2017).

The variables were designed primarily to summarize responses in relation to the Hispanic/Latino race, ethnicity, and cancer questions as shown in the above table 2 (NCI, 2017). The derived variables were designed to show each response recorded according to the occupation question as a way of elucidating this information, especially when respondents did not adhere to the instructions and check only one response (NCI, 2017). Additionally, specific responses were evaluated, cleaned, and optimized for spelling errors, categorized, and upcoded into preexisting response codes when deemed appropriate (NCI, 2017). Also, when two variables were highlighted as a mark-only response instruction, imputation was conducted for questionnaires in which various responses were recorded (NCI, 2017).

This quantitative study was guided by three research questions, each of which was preceded by a null hypothesis and an alternative hypothesis:

Research Question 1 (RQ1): Is there a difference in knowledge of breast cancer among Hispanic/Latino women and women of other races, after controlling for SES factors (age, marital status, educational level, economic level, and working status)?

Alternative Hypothesis (H_a1): There is a difference in knowledge of breast cancer among Hispanic/Latino women and women of other races, after controlling for SES factors (age, marital status, educational level, economic level, and working status).

Null Hypothesis (H_01): There is no difference in knowledge of breast cancer among Hispanic/Latino women and women of other races, after controlling for SES factors (age, marital status, educational level, economic level, and working status).

Research Question 2 (RQ2): Is there a difference in attitude toward/perception of breast cancer among Hispanic/Latino women and women of other races, after controlling for SES factors (age, marital status, educational level, economic level, and working status)?

Alternative Hypothesis (H_a2) for RQ2: There is a difference in attitude toward/perception of breast cancer among Hispanic/Latino women and women of other races, after controlling for SES factors (age, marital status, educational level, economic level, and working status).

Null Hypothesis (H_02) for RQ2: There is no difference in attitude toward/perception of breast cancer among Hispanic/Latino women and women of other races, after controlling for SES factors (age, marital status, educational level, economic level, and working status).

Research Question 3 (RQ3): Is there a difference in breast cancer screening practices among Hispanic/Latino women and women of other races, after controlling for SES factors (age, marital status, educational level, economic level, and working status)?

Alternative Hypothesis (H_a3) for RQ3: There is a difference in breast cancer screening practices among Hispanic/Latino women and women of other races, after controlling for SES factors (age, marital status, educational level, economic level, and working status).

Null Hypothesis (H_03) for RQ3: There is no difference in breast cancer screening practices among Hispanic/Latino women and women of other races, after controlling for SES factors (age, marital status, educational level, economic level, and working status).

The statistical tests used to measure RQ1 included a multivariate logistic regression test, which primarily focused on discerning if the variable of knowledge caused a significant difference in how Hispanic/Latino women accessed and utilized breast cancer information. This meant the variable of knowledge was a high probability predictor of how Hispanic/Latino women engage in breast cancer treatment services. Specifically, a crude odds ratio test of the logistic regression model measured the difference in knowledge among Hispanic/Latino women and their development of breast cancer compared to NHW women. The multivariate logistic regression test measured Hispanic/Latino women's knowledge of breast cancer as compared to NHWs.

For RQ2, a multivariate logistical regression analysis test was applied to evaluate the Hispanic/Latino women's attitudes toward/perception of breast cancer treatment when compared to NHWs. Further, for RQ3, the adjusted odds ratio and multivariate logistic regression test were used to evaluate the level of screening differences between Hispanic/Latino women and NHWs. Further, distinct procedures and techniques were employed to account for the multiple statistical tests used in the study analysis. Specifically, using a stricter significance threshold compensated for the number of inferences being formed and signified that the stated confidence interval was formulated with the intent of minimizing erroneous inferences (Frankfort-Nachmias et al., 2015; Landau, 2004).

A covariate was included in this study to help measure the influence of a continuous and regression variable such as knowledge on the Hispanic/Latino race (Elston & Johnson, 2008). Interpretation of the study's results was based on the findings made in a series of statistical tests that included odds ratios, multivariate logistic regression, logistical regression analysis, and established confidence intervals (Elston &

Johnson, 2008). The results obtained from these tests were used to measure coincidence with the parameters of the hypotheses.

Threats to Validity

External Validity

One threat to validity that may have arisen in the cancer health study was the researchers' ability to measure the accuracy of the target subject's response. An inability to decipher whether a target subject provided correct and precise answers when responding to the value health survey questionnaire and the interview questions could threaten external validity (Creswell, 2009). Another potential threat to external validity was the inability to confidently state whether the results of this study could be used to evaluate breast cancer screening practices in other racial groups (Creswell, 2009). If the findings of this study were not widely applicable to other groups, the study's results might not be generalizable. If so, the results of this study would be neither useful nor representative of a targeted population (Creswell, 2009). Also, reactive effects that arose from the experimental arrangements may have threatened the external validity, because the target subjects were consciously participating in this experimental study and were experiencing the novelty of it (Brewer & Crano, 2000). This state of awareness may have affected their responses, and thus, the data collected (Brewer & Crano, 2000).

Internal Validity

Possible threats to internal validity included the expertise with which the study was performed, considering that the accuracy of the data being considered might have necessitated one to account for the issue of confounding variables (Creswell, 2009). More specifically, extraneous variables could have influenced the conclusions made about cause and effect related to the variable of interest (Brewer & Crano, 2000). Another potential threat to internal validity was the manner of selection. The study groups and participants needed to be genuinely randomly selected and thus have equal chances of receiving the resources necessary for answering the questionnaire (Brewer & Crano, 2000).

Construct Validity

A likely threat to construct validity involved the adequacy of the selected statistical tests for measuring variable claims and reflecting the true nature of variables in a theoretical sense (Brewer & Crano, 2000). The adequacy of the selected instruments was highly relevant to whether those instruments can accurately measure the health behavior of Hispanic/Latino women (Brewer & Crano, 2000). Other possible threats to construct validity involved the accuracy of the data and whether they were sufficient for evaluation of Hispanic/Latino women’s self-efficacy when engaged in EDPs or breast cancer screening (Frankfort-Nachmias et al., 2015).

Data Approval

Measures were taken to adhere to the Institutional Review Board ethical standards to preserve the integrity of this study. As already noted, this research was based solely on secondary data analysis of the results of primary research carried out by the NCI in a national survey sponsored by the United States. Department of Health and Human Services (NCI, 2017). The goal of the study was to collect as much data as possible about what information individuals who had breast cancer wanted to know and how they search to obtain such information (NCI, 2017). The NCI interviewers mailed surveys and questionnaires to participants and contacted participants by telephone to obtain this information.

In compliance with sound ethical approaches for obtaining secondary data for this study, the NCI was contacted by phone and email to obtain consent to access the HINTS secondary dataset (NCI, 2017). Moreover, it was required to supply a guideline and sample of the study prospectus to appropriate personnel before gaining the electronic access needed to obtain the necessary secondary data. To gain access to these data, I was required to provide documentation, including a copy of my student identification card, course enrollment form, and status as a student in the doctoral study program. Moreover, a member of the NIH interviewed me by telephone to enquire about the objective of my study. After this interview, I was required to contact the information entry department to access the desired data.

Many ethical principles governed the treatment of human participants whose data were used in this study. NCI researchers applied the principle of informed consent by including a letter in the home-mailed survey and questionnaire that sought participants' consent (NCI, 2017). Also, the interviewer explained the study's objective to participants who were interviewed over the phone and sought their consent to participate in the study, with the study objective and goals specifically explained to the target subjects so they could make an informed decision about participating in the research (NCI, 2017). The interviewer made potential participants fully aware that their participation in the study was voluntary and they were free to not respond to the survey or questionnaire and could withdraw from the study at any time (NCI, 2017). The current study also applied the principle of confidentiality. Participants' information remained confidential, and their responses were not linked to their names (NCI, 2017). The study thus preserved and upheld the privacy interests of the research participants, treating them as autonomous human beings capable of making their own decisions (HINTS, 2014).

Some of the ethical concerns surrounding this study were related to the recruitment materials and processes described in documents associated with the secondary data set; specifically, regarding sensitivity to cultural and social differences (HINTS, 2014). For example, the study ultimately presented the survey and questionnaire items in Spanish to increase Hispanic/Latino households' response rates (HINTS, 2014). However, initial cycles of the questionnaire had been framed in English, which raised concerns about whether the target subjects would be comfortable responding to the home-mailed survey and questionnaire (HINTS, 2014).

The ethical concerns related to the data collection described in the secondary data centered on whether participants responded accurately when answering the survey and questionnaire—especially considering the complex structuring of the questions, which could have produced significant rates of unresponsiveness (HINTS, 2014). The secondary datasets underwent various treatment measures to protect the integrity of the data. After being gathered, the data were processed by scanning, validation, cleaning, and editing of questionnaire responses (HINTS, 2014).

The gathered data were then stored in the SMS database using standard data storage and dissemination measures to preserve their confidentiality (HINTS, 2014). The revised surveys were disseminated through a high-speed TeleForm scanner to capture the participants' responses, with scanned data captured for validation in accordance with HINTS guidelines (HINTS, 2014). A quality assurance staff member accessed the data to perform quality control checks and identify potential outliers (HINTS, 2014). No additional ethical issues were associated with the study. Notably, the HINTS did not provide information about when the data would be destroyed (HINTS, 2014). Thus, this study employed a cross-sectional research design in its use of surveys and questionnaires to collect secondary data.

Summary

Section 2 discussed this study's research design and the reasoning behind its selection, the target population, and the research instruments and data analysis techniques employed. The study used a descriptive secondary dataset that was verified and stored in an SMS database. The target participants were women aged 25–60 years. Three distinct statistical tests—crude odds ratio, multivariate logistic regression analysis, and logistical regression analysis—were used to measure the hypotheses and research questions.

Section 3 presents a detailed and thorough presentation of the target population and relates the results of this quantitative study to each of the three research questions and associated hypotheses. Various tables are used to illustrate the findings and their association with the salient variables.

Section 3: Presentation of the Results and Findings

Introduction

My quantitative study employed secondary data to assess and measure the influence of breast cancer on Hispanic/Latino women. Specifically, how screening practice, knowledge, and attitude/perceptions influenced and impacted women from the Hispanic/Latino population in their utilization of breast cancer screening and treatment services was assessed.

Research Question 1 (RQ1): Is there a difference in knowledge of breast cancer among Hispanic/Latino women and women of other races, after controlling for SES factors (age, marital status, educational level, economic level, and working status)?

Alternative Hypothesis (H_a1): There is a difference in knowledge of breast cancer among Hispanic/Latino women and women of other races, after controlling for SES factors (age, marital status, educational level, economic level, and working status).

Null Hypothesis (H_01): There is no difference in knowledge of breast cancer among Hispanic/Latino women and women of other races, after controlling for SES factors (age, marital status, educational level, economic level, and working status).

Research Question 2 (RQ2): Is there a difference in attitude toward/perception of breast cancer among Hispanic/Latino women and women of other races, after controlling for SES factors (age, marital status, educational level, economic level, and working status)?

Alternative Hypothesis (H_a2) for RQ2: There is a difference in attitude toward/perception of breast cancer among Hispanic/Latino women and women of other races, after controlling for SES factors (age, marital status, educational level, economic level, and working status).

Null Hypothesis ($H_0$2) for RQ2: There is no difference in attitude toward/perception of breast cancer among Hispanic/Latino women and women of other races, after controlling for SES factors (age, marital status, educational level, economic level, and working status).

Research Question 3 (RQ3): Is there a difference in breast cancer screening practices among Hispanic/Latino women and women of other races, after controlling for SES factors (age, marital status, educational level, economic level, and working status)?

Alternative Hypothesis (H_a3) for RQ3: There is a difference in breast cancer screening practices among Hispanic/Latino women and women of other races, after controlling for SES factors (age, marital status, educational level, economic level, and working status).

Null Hypothesis ($H_0$3) for RQ3: There is no difference in breast cancer screening practices among Hispanic/Latino women and women of other races, after controlling for SES factors (age, marital status, educational level, economic level, and working status).

Section 3 examines the data analysis undertaken; specifically, it provides a time frame as per the data collection, along with the recruitment process and response rate. Moreover, potential discrepancies of the secondary data set are highlighted, and reporting of baseline descriptive and demographic characteristics of the sample are discussed, along with sample representation. The reporting of descriptive statistics applicable to the sample is characterized in this section, and statistical analysis and findings presented using tables, charts, and summaries. Finally, transitional material from the findings is provided, shifting prescriptive material from Section 4 is discussed, and a summary of the quantitative statistical tests of the findings from the data analysis performed reviewed.

Data Collection of Secondary Data Set

The HINTS of secondary data were collected over a specified period. The HINTS administered the mail-mode data survey and questionnaire over three years, with Cycle 2 data collected primarily from October 2012 to January 2013 (HINTS, 2014). The participants were recruited using the next-birthday method, which necessitates that adults with the next birthday complete the questionnaire per household (HINTS, 2014). The participants were recruited explicitly by mail and inbound phone calls (HINTS, 2014). For the secondary data set, the overall household response rate was 39.97%, as 48,929,521 individuals completed the survey and questionnaire out of a possible sample of 122,403,874 (HINTS, 2014), with 15,806,608 flagged as non-respondent subjects (HINTS, 2014). A 0.5% proportion of people refused to answer the survey, and 60% of participants were unresponsive (HINTS, 2014).

Potential discrepancies identified in the use of secondary datasets presented in this study include the possibility that such data may not be enough in detail. For example, having a lower response rate with the survey questionnaire was not sufficient in detail to address potential inquiries that the researcher might propose. The participants for this study were individuals aged 17 years and older who belonged to low minority and high minority areas. The participants were Hispanic/Latino women who belonged to either high-income or low-income households. These individuals were selected based on numerous demographic factors such as educational attainment (i.e., having some or no high school education, along with having some or no college education).

The sample was representative of the Hispanic/Latino population being studied in the current research. All elements in this study, such as the participants, had an equal chance of being selected in the sample. For example, the participants were selected based on their educational attainment, marital status, gender, age, and census region to ensure full representation in this study (HINTS, 2014). These salient variables represent the population in a precise manner (HINTS, 2014).

Results and Findings

The participants for this study were individuals who resided in low and high minority areas. Thus, I divided the target participants into low and high minority strata to oversample the high minority stratum (HINTS, 2014). This division increased the precision of the estimates as per the minority subpopulation in the selection process (HINTS, 2014). Further, the participants selected to take part in this study were individuals aged 17 years and older. The participants also belonged to either high-income or low-income households. These individuals were selected based upon having some or no high school or college education.

Table 1 provides a descriptive statistical overview of the sample participants' age. The sampled participants were 17-65 years of age. The mean and median age of the participants was 41 years. The range was determined to be 48, while the mode value varied. The standard deviation measurement was 14.28, which indicated that the standard deviation was significantly spread from the average mean of the sample. The variance was computed to be 204.17, which could indicate that the sample age range was highly dispersed. Table 1 also illustrates the participants' wide age gap. Also, the mid-range was 41, while quartile 1 was 28.5, quartile 2 was 41, and quartile was 53. More specifically, the interquartile range (IQR) was 24.5, the sum of the squares was 9800, and the mean absolute deviation was 12.24.

Additionally, the root mean square was 43.37, and the standard deviation error of the mean was 2.04. There was zero skewness, the kurtosis value was 1.76, and the coefficient of variation was 0.349. Finally, the relative standard deviation was 0.385.

Table 1

Characteristics of Participants' Age (n=3677)

Participants' Age	Value
Mean	35.76
Median	30
Mode	50
Standard Deviation	14.23
Variance	202.73
Mid-range	41
Quartile 1	24
Quartile 2	30
Quartile 3	50
Interquartile Range	26
Sum of Squares	745852.4
Mean Absolute Deviation	12.72
Root Mean Square (RMS)	43.47
Standard Error of Mean	2.04

In Table 2, each data bracket indicates and highlights the number of occurrences of participants who fall into a age range.

Table 2

Characteristics of Participants' Age Frequency

Age Range	Frequency	Frequency %
17–23	632	17.2
24–30	1392	37.9
31–35	135	3.67
36-40	174	4.73
41–45	148	4.03
46–50	587	15.96
51-55	109	2.96
56-60	398	10.8
61-65	102	2.77

The descriptive characteristics were derived from a sample population of 3,677: 3,521 participants from English-speaking households, and 156 individuals from Spanish-speaking households completed the survey questionnaire. Only 65 participants refused to answer the questionnaire about their risks for breast cancer, while another 463 of the household individuals were missing inputs for breast cancer screening. Approximately 791 of the survey questionnaires were not successfully delivered to the respective household. All the respondents lived in the same region and were 18-65 years of age. Three statistical tests were run.

The first statistical test included multivariate regression and chi-square to identify if there was a difference in breast cancer knowledge among Hispanic/Latino women and women from other races. The second statistical test was a logistic regression, which measured the likely difference in attitude/perception of breast cancer among Hispanic/Latino women when compared to women from other races. Finally, I used a multiple regression test to discover whether there were differences in breast cancer screening practices among Hispanic/Latino women and those of other races, as well as to predict the categorical dependent variable using multiple independent variables. The statistical tests and results are discussed in Section 3.

Assumptions

The sample was representative of the Hispanic/Latino population studied in this research. All elements in this study, including the participants, had an equal chance of being selected in the sample. For example, the participants were selected based on their educational attainment, marital status, gender, age, and census region (HINTS, 2014). These salient variables represented the population in a precise manner (HINTS, 2014).

The participants selected to partake in this study were Hispanic/Latino women who belong to various income households (HINTS, 2014). These individuals were women with some formal high school training, college training, or neither type of training. The target participants were women aged 2560 years; 3,677 participants completed the survey questionnaire (HINTS, 2014).

In terms of evaluating the appropriation of study assumptions, the instruments used to collect the necessary data provided a comprehensive measure of the variables examined. Moreover, the participants, for the most part, were honest and offered insightful responses regarding their undertaking of breast cancer screening, engagement in EDPs, use of treatments, and their overall well-being. Hence, the sample was assumed to be representative of the population studied.

Statistical Analysis

For RQ1 I measured whether there was a difference in knowledge about breast cancer between Hispanic/Latino women and women of other races, after controlling for SES factors (age, marital status, educational level, economic level, and working status).

Table 3

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	3630	100.0
	Missing Cases	0	0.0
	Total	3630	100.0
Unselected Cases		0	0.0
Total		3630	100.0

In measuring RQ1 and *H*1, specifically, stratification, sampling, and clustering of data collected by survey were achieved via SPSS. A chi-square test and multivariate regression test were used to measure the behavior of Hispanic/Latino women when compared to women from other races while controlling for variables like age, education, and income (Landau, 2004). A confidence interval of 95% was chosen, along with a 5% margin of error; subsequently, the effect size was set at 0.15, alpha at 0.05, and power at 0.95. A crude odds ratio was used to evaluate the likelihood of Hispanic/Latino women acquiring breast cancer when compared to NHWs, while controlling for variables such as age, education, and income (Landau, 2004).

Further, the effect of healthcare quality on screening was measured using the logistic regression test (Landau, 2004). Table 3 summarizes the selected cases analyzed in the study. This table was a reference point for the subsequent data analysis as a way to compensate for the values that were missing due to incomplete survey questionnaires. As presented in Table 3, the logistic regression was used to identify essential correlates regarding screening among all Hispanic/Latino women (Landau, 2004). In this study, the confidence interval was evaluated to estimate the differences among the population of women from various ethnic/racial groups (Landau, 2004). In turn, it was deduced that p1-p2, as per the estimate for the difference in the sample confidence interval. Table 3 presents the number of individuals analyzed in this study, depicts the number of participants who responded to the survey questionnaire, and provides an overview of the sample that was analyzed.

Table 4

Classification of Participants Analyzed

Observed N		Predicted Outcome		
		Household identified as Hispanic by either being in highly linguistically isolated strata or having a Hispanic surname match, or both.		Percentage Correct
		Yes	No	
Household identified as Hispanic by either being in highly linguistically isolated strata or having a Hispanic surname match, or both.	Yes	0	469	12.75
	No	0	3208	87.24
Overall Percentage				100.0

Note. Constant is included in the model. The cut value is .500.

Table 4 classifies the observed and predictive value as per the participant's household. The participants were classified as Hispanic/Latino women living in highly linguistically isolated strata or having a Hispanic surname match, or both. Therefore, the predictive value that indicated participants with a Hispanic/Latino surname, or living in highly linguistically isolated strata may not have appropriate knowledge or information about breast cancer.

Table 5

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	2.028	0.052	1534.428	1	0.000	7.602

Table 5 presents data regarding the variables used in the prescribed equation.

Table 6

Variables not in the Equation

Variables	Score	df	Sig.
Race Ethnicity	3.614	1	0.057
Age Group A	1.660	1	0.198
Age Group B	2.458	1	0.117
Hispanic Household Income	2.290	1	0.130
Education Group A	16.559	1	0.000
Education Group B	23.406	1	0.000
Overall Statistics	46.039	6	0.000

The variables of interest are presented in Table 6. These variables showed high correlations regarding the vast difference in knowledge as it correlated to breast cancer, with education, race, and Hispanic household identified as significant. For example, variable Education A included individuals who had some high school and college training and thus, were less likely to have good knowledge about breast cancer. The variable Education B included those individuals who had bachelor and post-bachelor training and were likely to have a better knowledge of breast cancer.

Table 7

Omnibus Tests of Model Coefficients

	Chi-square	df	Sig.
Step	54.893	6	0.000
Block	54.893	6	0.000
Model	54.893	6	0.000

Model Summary

Log-likelihood	Cox & Snell R Square	Nagelkerke R Square
2554.302[a]	0.015	0.029

[a] A chi-square test was used to identify any significant difference between the Log-likelihoods of the baseline and the new model (Table 7). This was performed to explain the variance in breast cancer knowledge as it pertained to Hispanic/Latino women. For the Hispanic/Latino race, knowledge was likely to be presented when it came to understanding breast cancer. The estimation was at iteration number 6 since the parameter estimates changed by less than .001.

Table 8

Classification of Participants by Location

Observed			Predicted		
			Household identified as Hispanic by either being in highly linguistically isolated strata or having a Hispanic surname match, or both.		Percentage Correct
Step 1	Household identified as Hispanic by either being in highly linguistically isolated strata or having a Hispanic surname match, or both.	Yes	325	144	12.75
		No	258	2950	87.24
	Overall Percentage				100.0

Table 8 shows that individuals living in a highly linguistically isolated stratum or who possessed a Hispanic/Latino surname were more likely to have lower knowledge of cancer compared to those with a different surname.

Table 9

Variables in the Equation

							95% C.I. for Exp(B)	
Variables	B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Race	0.005	0.016	.124	1	0.725	1.005	0.975	1.037
Age Group A	-0.079	0.067	1.379	1	0.240	0.924	0.810	1.054
Age Group B	0.078	0.067	1.346	1	0.246	1.081	0.948	1.233
Household income	0.003	0.013	0.062	1	0.803	1.003	0.979	1.028
Education of Group A	-1.208	0.243	24.813	1	0.000	0.299	0.186	0.481
Education of Group B	1.257	0.237	28.045	1	0.000	3.516	2.208	5.600
Constant	1.817	0.083	478.117	1	0.000	6.151		

Table 10

Omnibus Tests of Model Coefficients

		Chi-Square	df	Sig.
Variable	Step	16.099	3	0.001
	Block	16.099	3	0.001
	Model	70.991	9	0.000

Table 11

Model Summary

Log-likelihood	Cox & Snell R Square	Nagelkerke R Square
2538.203[a]	0.019	0.038

Classification of Participants by Area or Surname

Observed	Predicted		
	Yes	No	Percentage Correct
Household identified as Hispanic by either being in highly linguistically isolated strata or having a Hispanic surname match, or both.	453	0	12.35
	0	3224	87.65
Overall Percentage			100.0

Tables 9, 10, and 11 show the use of multivariate logistic regression analysis to evaluate the independent and dependent variables for RQ1 and H1. The effect of appropriate knowledge of breast cancer among Hispanic/Latino women was assessed. The logistic regression analysis indicated that there were essential correlations between knowledge and key variables, such as age, income, race, and educational level (Landau, 2004). These and the confidence variables illustrated the significant difference in knowledge of breast cancer among the Hispanic/Latino women population when compared to women from other racial groups. In turn, the sample size confidence interval estimate difference is deduced as p1-p2.

For RQ2 and H_a2, a logistical regression analysis was undertaken to measure the attitude of Hispanic/Latino women regarding cancer treatments when compared to NHW women, using a confidence interval of 95% with a 5% margin of error. The effect size was set at 0.15, alpha at 0.05, and power at 0.95. The results suggest that race and ethnicity are critical determinants of attitudes toward breast cancer among Hispanic/Latino women.

The point estimate indicated that a difference existed between the two sample proportions of Hispanic/Latino women and NHWs (Landau, 2004). As presented in Tables9, 10, and 11 , if the number of successes and failures observed were comparatively greater or equal to five for the populace under comparison, the sampling distribution was considered as approximately normal, as indicated by the use of z-methods (Landau, 2004). Hence, a two-tailed test was deemed appropriate to assess the population proportion under comparison (Landau, 2004).

Table 12

Classification of Race and Fear towards Breast Cancer

Race	Amount	Yes (% Attitude of Fear)	No (% Fear)
Hispanic	1510	Yes (41.6%)	
White	1060	Yes (25.6 %)	130 (3.58%)
Black	1060	Yes (29.2%)	

* In the above table 12 it illustrated out of possible 3630 respondents, 41.6% Hispanic/Latino women reported perceiving breast cancer with a grave sense of fear and panic. In turn, 25.6%, whites, and 29.2%, blacks did associate the sentiment of fear when speaking about breast cancer.
Note. Constant is included in the model. The cut value is .500

Table 13

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-1.525	0.043	1238.800	1	0.000	.218

Table 14

Variables Not Used in the Equation

Variable Name	Score	df	Sig.
Chance Get Cancer	5.424	1	0.020
Hispanic Household	23.082	1	0.000
Breast Cancer More Common	30.865	1	0.000
Race_Cat2	3.661	1	0.056
Compare Chance Get Cancer	4.238	1	0.040
Cancer Trust Doctor	3.044	1	0.081
Overall Statistics	57.100	6	0.000

In Tables 12, 13, and 14 demonstrate the logistical regression analysis undertaken to evaluate the attitudes of Hispanic/Latino women regarding breast cancer treatment when compared to NHWs. The tables indicate that race (Hispanic/Latino) has significant determinants of attitudes toward breast cancer screening. Especially in table 12 the Hispanic/Latino race had the highest negative association regarding breast cancer screening when compared to other races. Together with the dependent variable (attitude), these findings show Hispanic/Latino women have a lower response rate regarding seeking information on health and medical topics, such as cancer, than numerous independent variables (race, age, income, educational level, and work status). Although the participants looked for health information, the findings indicate that these individuals have a significantly negative view of cancer.

Table 15

Omnibus Tests of Model Coefficients

		Chi-square	Df	Sig.
Step 1	Step	51.617	6	0.000
	Block	51.617	6	0.000
	Model	51.617	6	0.000

Table 16

Model Summary and Estimation

Step	Log-likelihood	Cox & Snell R Square	Nagelkerke R Square

1	3357.320[a]	0.014	0.023

Note. a = Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Table 17

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	7.292	8	0.505

Table 18

Contingency Table for Hosmer and Lemeshow Test

Steps	Observed	Expected	Observed	Expected	Total
1	323	332.078	64	54.922	387
2	273	272.099	47	47.901	320
3	253	251.594	44	45.406	297
4	325	315.655	49	58.345	374
5	258	263.976	56	50.024	314
6	316	305.529	48	58.471	364
7	301	304.591	63	59.409	364
8	291	291.814	60	59.186	351
9	282	286.302	78	73.698	360
10	359	357.361	140	141.639	499

Table 19

Observed		Predicted		
		Yes	No	Percentage Correct
Step 1	Yes	2980	1	100.0
	No	649	0	0.0

Overall Percentage	82.1

Classification Table

Note. The cut value is 0.500

Table 20

Casewise List and Observed Information

	Observed				Temporary Variable	
Case	Selected Status	A1. Have you ever looked for information about health or medical topics from any source?	Predicted	Predicted group	Resid	ZResid
925	S	N**	0.135	Y	0.865	2.528
1829	S	N**	0.133	Y	0.867	2.549
2528	S	N**	0.135	Y	0.865	2.529
2542	S	N**	0.135	Y	0.865	2.531
2775	S	N**	0.135	Y	0.865	2.529

Note. S = Selected, U = Unselected cases, and ** = Misclassified cases. Cases with studentized residuals greater than 2.000 are listed.

Findings corresponding to RQ3 and H3 are shown in tables 1520, in which multiple regression analysis tests were employed. A confidence interval of 95%, a margin of error of 5%, an effect size of 0.15, an alpha of 0.05, and a power at 0.95 were employed, and the adjusted odds ratio test utilized. As show tables 1520, these tests were useful in identifying the notable differences in breast cancer screening practices among Hispanic/Latino women.

In tables 15-20, the case wise list, adjusted odds ratios, and confidence intervals usefully highlight the effects of independent variables (SES factors) and the dependent variable (breast cancer screening practice). The findings suggest notable differences in breast cancer screening practices among Hispanic/Latino women. This observation was drawn from various racial and ethnic groups and illustrated the decisive roles income level, educational background, and culture have in screening practices toward illnesses like breast cancer (Gómez & López, 2013). Tables 1520 also show the SES factors that influence breast cancer screening practices among Hispanic/Latino women. The variables of income, age, and educational levels influence Hispanic/Latino women's evaluation and identification of screening practice information compared to other races.

Table 21

Use of Screening Practice

Race	Degree of the usage of modern screening techniques
Hispanic	99%
Latino	98%
Other races	97%

As is evident in table 21, Hispanic/Latino women have a high usage of modern screening techniques. However, they are less likely than women from other races to obtain an annual screening test for breast cancer.

Summary

The data presented in Section 3 summarized the data collection process, described the demographics of participants, and discussed the results used to decipher associations among breast cancer, knowledge, screening practice, and attitude of Hispanic/Latino women. The findings revealed differences in knowledge of breast cancer among Hispanic/Latino women when compared to other races. In measuring the second research question, which assesses the differences in attitudes regarding breast cancer among Hispanic/Latino women compared with those of other races, the study reveals that race and ethnicity are salient determinants of attitudes toward breast cancer among Hispanic/Latino women.

Hispanic/Latino women had a positive attitude toward information sources like physicians and medical facilities; however, the study findings indicate a negative attitude when these individuals lacked information sources. In addressing the third research question, which was to investigate the difference in breast cancer screening practices among Hispanic/Latino women when compared with those of other races, the findings indicate notable differences in how frequently Hispanic/Latino women access screening practices. The disparity was mainly due to income, knowledge, culture, and attitudes toward a health condition like breast cancer.

Section 4 provides a discussion of the results and extends the findings and knowledge obtained from Section 3. A brief discussion of the limitations arising from the data is also presented and possible recommendations for further research identified.

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

Introduction

In this study, I evaluated breast cancer screening practices, knowledge, and attitude among Hispanic/Latino women. I explain how these women often face significant disparity in breast cancer diagnoses, treatments, and outcomes. The findings revealed that salient factors such as low health knowledge, screening practice, income, attitude, and culture contribute to Hispanic/Latino women's increased risk of being diagnosed with breast cancer at a fatal stage. Further, it was shown that variables such as knowledge, attitude, and income cause Hispanic/Latino women to experience significant delays in breast cancer screening and diagnosis.

Discussion of Interpretation of the Findings

RQ1 and *H*1

Knowledge plays a crucial role in Hispanic/Latino women's lives because it can encourage or discourage these individuals from engaging with breast cancer screening and making decisions that are relevant to their health. Knowledgeable individuals were more likely to address the subject matter with a positive perspective than those who did not have the same level of knowledge. Notably, people tend to respond better to things they understand than those they do not. If a person understands the need for breast cancer screening, they are more motivated to obtain cancer tests. As breast cancer is treatable if detected early, those who know about the disease are more likely to receive checkups (Manning et al., 2016). The results showed that when Hispanic/Latino women have the appropriate information, they are likely to get screening for cancer or inquire about screening tests.

The findings from this study confirm and extend the knowledge in the discipline. The literature affirmed that behavioral factors such as attitude, knowledge, and screening practice are salient contributors to differences in breast cancer detection and survival in Hispanic/Latino women (Molina et al., 2013).

When measuring RQI with a view to determining Hispanic/Latino women's differences in knowledge about breast cancer, data analysis indicated that age and household income were the primary determinants of knowledge, followed by educational level attained (Health Disparities Conference, Wallace, & Columbia University, 2008). Findings thus indicated that Hispanic/Latino women had a difference in knowledge due to their level of income and age. Consequently, such differences in knowledge, age, and income affect Hispanic/Latino women's breast cancer diagnoses more than NHW women's (

This quantitative research found differences in knowledge about cancer between Hispanic/Latino women and other races after controlling for SES factors. After collection of the participants' responses, a statistical test was run to assess for differences in knowledge, with the confidence level set to 95% so as to discover whether factors were statistically significant. The statistical test revealed that most factors were dependent and that Hispanic/Latino women's knowledge about cancer relied on various factors (Huang & Shen, 2016). In this quantitative research, a chi-square test was used, with the mean of the distribution equal to the degree of freedom.

Additionally, the statistical analysis was based on the degree of freedom, which reflects the frequency of variables' occurrence. In my research, I divided variables of interest into the categories of race, education, employment, and age. The confidence level was set at 0.05—the basis on which the assumptions were made. This test method was intended to better identify variables' likelihood of occurrence.

Most of the young people studied perceived that breast cancer only affected older women. The responses from participants 25 years and below indicated that their knowledge of cancer depended on age, as they believed breast cancer screening was for those who had children or had reached menopause. The statistical test indicated that 96% of respondents 25 years and younger had not suffered from breast cancer; therefore, they perceived that cancer could only affect those who were older than them. Based on these findings, it was noted that age affected women's knowledge of cancer.

Concerning marital status, quantitative analysis of the data showed that most the women who were aware of cancer screening were married. Notably, 96% of those who were not married had no experience with cancer screening. Married people were more likely to get cancer screening than those who were not married. Approximately 95% of married respondents had experienced breastfeeding, and most of these women had undergone cancer screening. As the number was more than the confidence level, it was evident that married respondents had more knowledge of cancer than unmarried respondents (Falzon et al., 2015).

Most of the respondents had a basic education; however, basic education was not enough to determine whether the respondents had knowledge about breast cancer screening. Education plays a crucial role in imparting knowledge on any subject matter. Those who were more educated knew about the side effects and preventive measures of breast cancer. Further, the research results indicate that most educated respondents were aware of the effects and importance of breast cancer screening. Additionally, the hypothesis test showed that working-class respondents were more knowledgeable than unemployed respondents. Generally, in my quantitative research I found that knowledge about cancer was contingent on factors such as age, working status, marital status, and education level.

RQ2 and *H*2

Attitude was one of the factors that influenced behavior. Human behavior has different impacts on human life, including how people respond to their health issues. According to the literature review, attitude influenced an individual's decision to obtain cancer screening. A logistical regression analysis test showed that 82.1% of Hispanic/Latino engaged in some form of information search about breast cancer.

My study indicated that race and ethnicity were salient determinants of attitudes regarding cancer in Hispanic/Latino women also and revealed that Hispanic/Latino women were more likely to have a positive attitude toward information sources regarding breast cancer. However, this was only the case if the information was presented to them by a physician or medical practitioner, as a negative association toward breast cancer resulted when information sources were missing and not provided to them.

In analyzing the findings, I found a difference in perception or attitude between Latino women and those of other races. The statistical analysis showed that the dependent variable significantly influenced the respondent’s perception and attitude. The responses collected from the participants indicated that those of Latino origin had differences in relation to attitude (Chirico et al., 2015). This concurs with the literature reviewed on the effects of attitude on Latino women in reference to breast cancer. These findings are based on actual responses from the data collected. The quantitative analysis also indicated that the dependent variable was significantly relevant in determining matters concerning breast cancer. The main aim of the statistical test was to determine whether the null hypothesis was true or false. In this case, the results showed that the null hypothesis was true; hence, it was accepted. For the research to avoid both type I and type II errors, accurate data were used in the analysis.

The method used to identify participants was an important strategy in ensuring a large sample size was attained. My quantitative research aimed to collect enough data from people, so a long deadline was set to enable respondents’ adequate time to complete the questionnaire. Moreover, having personal contact with the participants increased their reliability and commitment to completing the questionnaire. The text message reminders to participants’ phones also played a central role in data collection. I found that time and contact were essential aspects of data collection. It is necessary to develop effective strategies for acquiring the set number of respondents for any research, as a large population size likely results in more conclusive results. In other words, a larger sample size is more likely to determine the actual view of the total population than a smaller one. The overall view of the effects of attitude among the women was vied based on the large population covered.

In this quantitative research, I also found that out of the 122,403,874 households, only 48,929,521 responded to the questionnaire, which is 39.98% of the total population. Although the responses came from less than half the total population, the researchers who collected the initial data used this scenario as an observation regarding the research question. They posited that one of the reasons why some households did not respond despite being contacted was a negative attitude. Specifically, as most Hispanic/Latin women had a negative attitude and an adverse perception of breast cancer, they did not provide their responses.

The implication of attitude toward breast cancer was determined by performing another statistical test, primarily to determine the differences between the two races. The statistical test found that negative attitudes among the Hispanic/Latino women affected some aspects of their lives, including the perception that breast cancer affected only a certain group of people, which promoted ignorance among them. Consequently, the ignorance of most women resulted in and compounded the health problem. Thus, the research team concluded that attitude influenced the decision of what to do at a particular time. However, the researchers also noted that breast cancer should be considered as a dangerous disease (Zhu et al., 2016).

The danger of breast cancer was determined through statistical analysis. From the research I found that at least one out of eight Hispanic/Latino women will develop breast cancer, and the statistical analysis revealed the critical role race played in determining the effects of breast cancer among women. Age also affected women’s perception of the effects of cancer screening. More than 50% of the respondents who were 25 years and below were more ignorant than those who were 33 years and above; thus, age influences the attitude of participants. As far as attitude was concerned, the probability difference between the two races showed that Hispanic/Latino women were more likely to have a negative attitude toward cancer treatment than Hispanic women.

This difference also indicated that the null hypothesis was true, so it was accepted to avoid statistical errors. The respondents had different assumptions on the effects and treatment of breast cancer. Those who were ignorant about the effects and the likeliness of getting breast cancer were at higher risk of developing the disease due to a lack of suitable preventive measures. These findings provided the basis for asserting that prevention is the best way to reduce the prevalence of breast cancer among Hispanic/Latino women. Some of the participants (0.5% of the total population) refused to answer the questionnaire, which affirms that attitudes influence human decisions.

RQ3 and *H*3

In evaluating RQ3 and *H*3, an analysis of the odd adjusted ratios and confidence interval revealed there was an effect of SES factors on breast cancer screening behavioral differences in the Hispanic/Latino population. The data showed there were decisive differences in healthcare practices in the Hispanic/Latino women population. Factors such as income levels, educational background, attitudes, and behavior toward a disease like breast cancer contributed to such differences (Gómez & López, 2013). This difference impacted how frequently Hispanic/Latino women get screened for breast cancer. The study findings support the literature, which found that knowledge, attitude, income, and behavioral screening practice have contributed to Hispanic/Latino women being diagnosed with breast cancer at a fatal stage. In turn, this has impacted their treatment options upon being diagnosed with breast cancer at a later stage (Gómez & López, 2013).

Moreover, the regression analysis revealed there was no difference in breast cancer screening practices between Hispanic/Latino women and other races. According to the research, the variable of race was an independent variable in relation to breast cancer screening practices. Today, breast cancer screening uses modern machines, and almost all races have adopted these new practices. Therefore, the difference was not statistically significant. In this case, 98% of the respondents reported that they were aware of modern breast cancer screening practices, and it was evident that they used the same screening processes. These results led to the rejection of the null hypothesis (Occa & Suggs, 2016). The research aimed to prepare a conclusive report that outlines relevant information on the subject.

The study results showed supportive evidence from the actual population that aligns with the literature regarding breast cancer among Hispanic/Latino women. Breast cancer is a primary killer disease in the world. Concerning the variables in this research, people should develop a more positive attitude toward the prevention and treatment of breast cancer. Women must be aware of the screening processes and how to prevent the disease. The government and other relevant authorities must also provide effective healthcare services to reduce the incidence of cancer.

Over the years, knowledge has significantly affected the prevalence of breast cancer. Research, including this quantitative current study, has confirmed certain suggestions made by numerous health practitioners and health analysts. Therefore, the information presented in this study could be used by medical practitioners, government, and the general public to communicate the effects and prevalence of breast cancer. For instance, women could use this information to identify areas they could improve upon to reduce their chance of developing breast cancer.

SCT states the human behavior is influenced by focusing on the importance of self-regulation to foster behavioral change (Tougas et al., 2015). Further, attitude is one of the cognitive aspects that differs between people. SCT illustrates the effects of attitude on the subject matter. Apart from the secondary data, the findings are based on theoretical assumptions. This contributed to why some of the respondents refused to complete the questionnaire.

Limitations of the Study and Drawbacks

One of the strengths of this quantitative study was the ability to inform Hispanic/Latino women regarding the importance of undertaking breast cancer screening. More specifically, in this study, I was able to endorse positive health changes because I identified the barriers and factors that prevented Hispanic/Latino women from getting screened for breast cancer. In turn, I identified that physicians’ recommendations and medical practitioners’ health information was beneficial in inspiring Hispanic/Latino women to undertake breast cancer screening. Conversely, a possible weakness of this study was the inability to obtain substantial, reliable, and sound data to more fully address the research questions and hypotheses. Another limitation was the inability to utilize a larger sample data to more fully measure the breast cancer incidence and prevalence among Hispanic/Latino women. Overall, the main limitation of the study arose with the collection of consistent data. For any research, the data represent the main point of reference; if the respondents do not give accurate data, the research cannot meet its intended purpose. In this case, unresponsiveness was the main limitation.

The drawback of the cross-sectional design used was that the variables could not be manipulated where statistical analysis was limited. Given the time and resource constraints of this study, a limitation of the cross-sectional design was that it did not fully determine the true cause and effect of Hispanic/Latino women's behavior regarding breast cancer screening practices .However, the design did advance the current understanding of breast cancer inequality by emphasizing a sharper insight into the Hispanic/Latino women population Moreover, it supported the assumption that attitudes, knowledge, and screening practices did indeed affect these women's health and breast cancer outcomes.

Recommendations

Breast cancer has become a critical public health issue that is seen as a complex health problem among Hispanic/Latino women (Molina et al., 2013). Poor utilization of screening practices, low health knowledge, and negative association toward breast cancer caused Hispanic/Latino women to experience difficulties in attaining early diagnosis for this deadly disease (Molina et al., 2013). Nonetheless, there are some recommendations and ways that this study could have improved. Home addresses and living spaces were used to choose participants for this study. Future research should consider a more comprehensive study to reach participants from different regions. The majority of participants from this study did not fully complete or respond appropriately to the home survey questionnaire. Hence, future studies should consider identifying measures to help ensure that participants are responsive to the questionnaire and survey to obtain more expansive responses and data. After observing the weaknesses of this research, my preference is to consider a larger population size. For future research, sufficient time will be allocated in the data collection process to obtain accurate and conclusive responses.

Implications for Social Change

Numerous studies have highlighted the presence and disparity in results concerning the differences between Hispanic/Latino women and NHWs regarding their attitudes toward breast cancer screening practices (Koh, 2009). However, this study affirmed that SES factors, along with other variables associated with ethnicity, were predictive of the general attitudes of Hispanic/Latino women and their NHW counterparts toward breast cancer screening. The findings and results from this doctoral study revealed that quality of care was significantly related to individual breast cancer screening behaviors and attitudes in Hispanic/Latino women (Koh, 2009).

Hence, the need to improve data gathering as a way to promote the richness and extensive nature of information and knowledge for minority groups, such as Hispanic/Latino women and African-American women is identified in this study (Gomez &, 2013). A literature search revealed limited information, knowledge, and understanding of breast cancer screening practices and behavior among Hispanic/Latino women. The analysis of breast cancer screening behaviors, attitudes, and practices in Hispanic/Latino women, based on the use of language, birthplace, and subgroup, was somewhat challenging (Elk & Landrine, 2012). This was because the stratification results had a comparatively limited sample size in proportion to the small groups of Hispanic/Latino communities such as Puerto Ricans and Cubans (Elk, & Landrine, 2012). Such issues were relatively essential, considering there was significant variation throughout Hispanic/Latino subgroups regarding access to health insurance coverage and other sociodemographic factors (Elk, & Landrine, 2012).

The potential impact of fostering positive social change in this study provided the opportunity to increase breast cancer awareness, and boost understanding of the damage this disease causes among Hispanic/Latino women (Elk, & Landrine, 2012. The study aimed to bring about attitudinal changes in Hispanic/Latino women because these individuals were less engaged and motivated to undertake EDPs for breast cancer (Molina et al., 2013). Hispanic/Latino women need sufficient information and knowledge regarding breast cancer to make sound and holistic decisions about their diagnoses and treatment options (Molina et al., 2013). Without such knowledge or information, these individuals are being diagnosed with breast cancer as the disease progressed to a fatal state (Molina et al., 2013). Fostering social change like higher breast cancer awareness, promotion of EDPs, and health literacy could significantly help narrow the burdens Hispanic/Latino women have faced (Fernández et al., 2009).

I conducted this study to identify the causes of the prevalence and outcomes of breast cancer among participants. The research was focused on attitude, knowledge, and screening processes because these are significant factors directly related to the incidence and prevention of breast cancer. Having identified the extent of these factors' significance, all stakeholders must use this information.

Conclusion

Breast cancer is associated with fostering poor health outcomes among Hispanic/Latino women (Molina et al., 2013). Hispanic/Latino women's contact with desirable breast cancer care, treatment, and timely diagnoses is inadequate. Knowledge, negative association, income, age, and contact with healthcare providers are salient factors that have limited Hispanic/Latino women from getting screened for breast cancer (Castañeda et al., 2014; Molina et al., 2013). The focus and signifying message obtained from this study was to increase breast cancer awareness and individual and public health accountability, to improve Hispanic/Latino women screening, diagnosis, and outcomes with breast cancer. As improved breast cancer screening practices will reduce the burden of breast cancer among Hispanic/Latino women, it is important to implement continual education and increased access to health services and public health support via communication, screening, and monetary aides.

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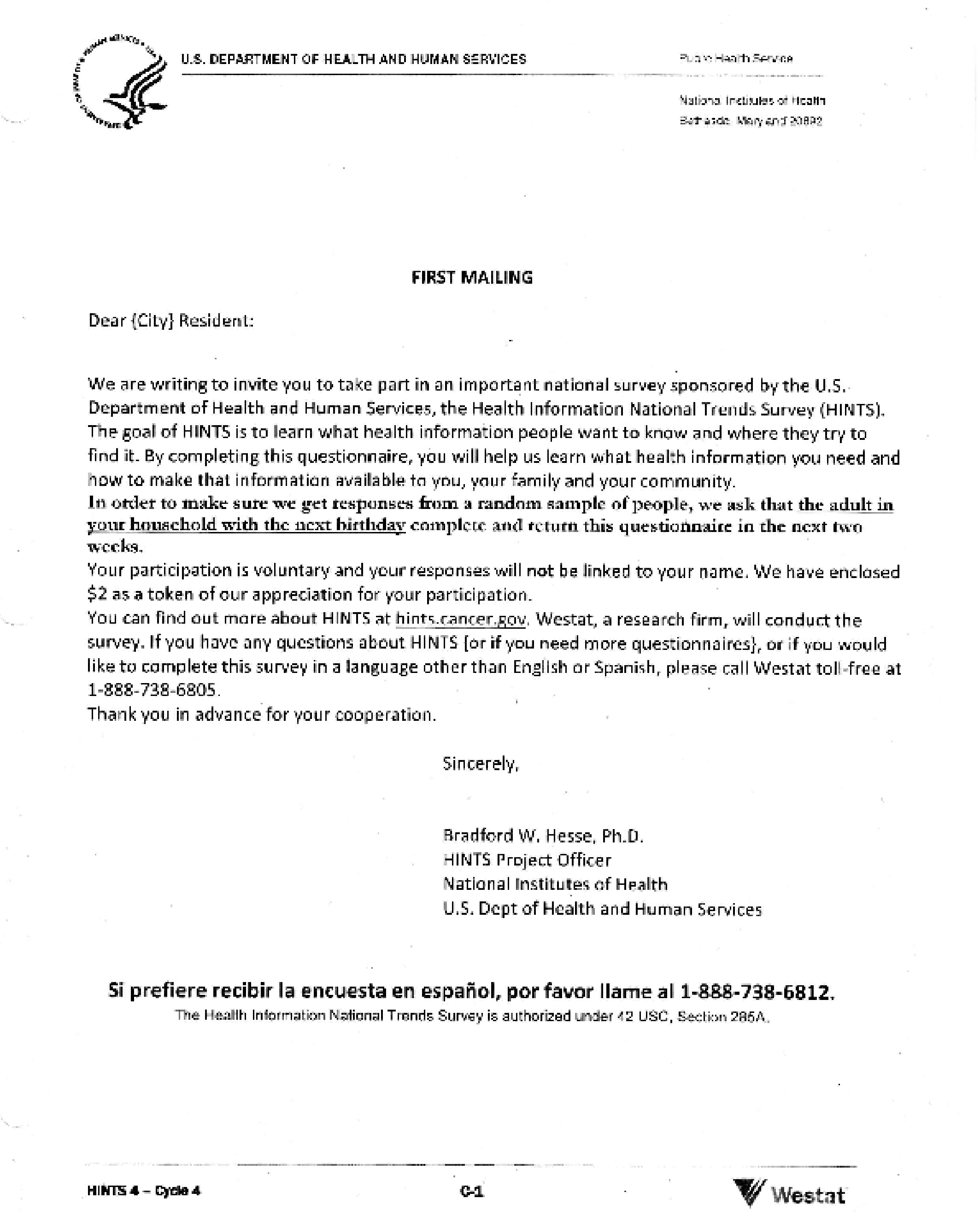
Appendix A: Consent Form (First Mailing)



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Public Health Service

National Institutes of Health
Bethesda, Maryland 20892

FIRST MAILING

Dear {City} Resident:

We are writing to invite you to take part in an important national survey sponsored by the U.S. Department of Health and Human Services, the Health Information National Trends Survey (HINTS). The goal of HINTS is to learn what health information people want to know and where they try to find it. By completing this questionnaire, you will help us learn what health information you need and how to make that information available to you, your family and your community.

In order to make sure we get responses from a random sample of people, we ask that the adult in your household with the next birthday complete and return this questionnaire in the next two weeks.

Your participation is voluntary and your responses will not be linked to your name. We have enclosed $2 as a token of our appreciation for your participation.

You can find out more about HINTS at hints.cancer.gov. Westat, a research firm, will conduct the survey. If you have any questions about HINTS {or if you need more questionnaires}, or if you would like to complete this survey in a language other than English or Spanish, please call Westat toll-free at 1-888-738-6805.

Thank you in advance for your cooperation.

Sincerely,

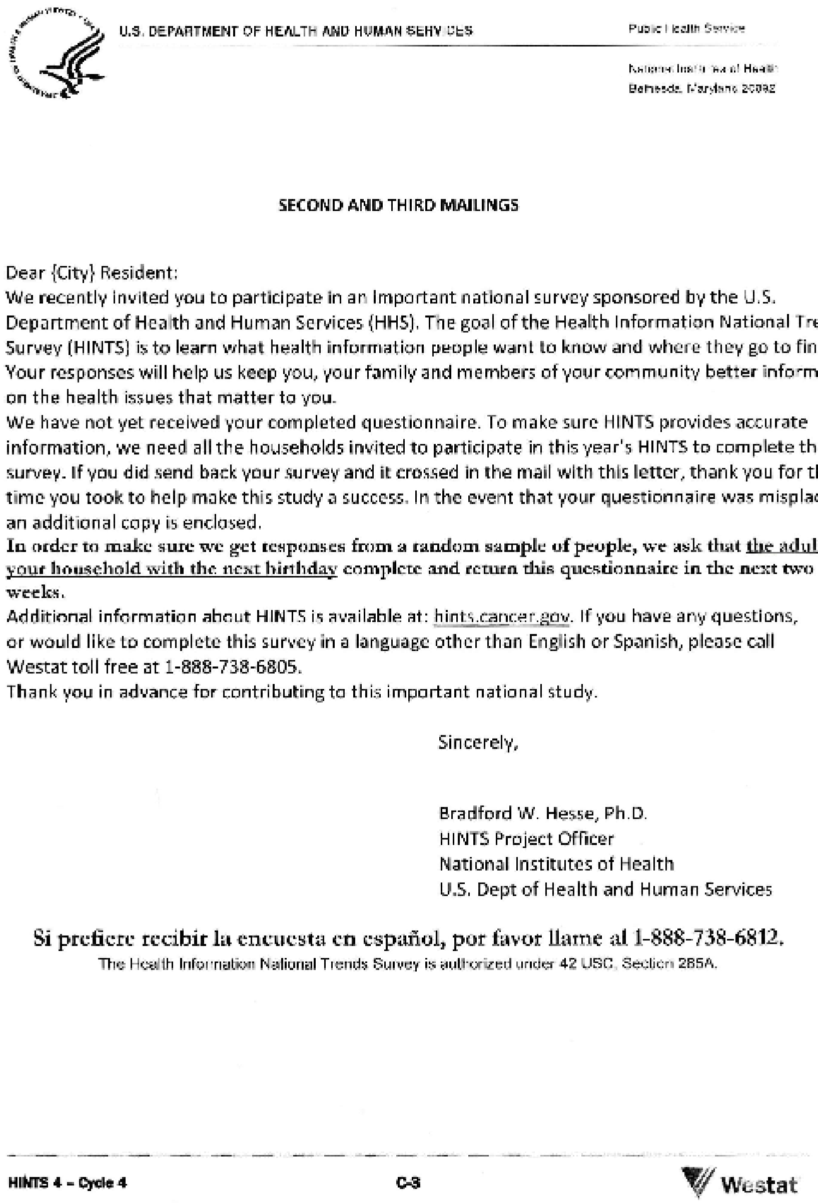
Bradford W. Hesse, Ph.D.
HINTS Project Officer
National Institutes of Health
U.S. Dept of Health and Human Services

Si prefiere recibir la encuesta en español, por favor llame al 1-888-738-6812.

The Health Information National Trends Survey is authorized under 42 USC, Section 285A.

HINTS 4 – Cycle 4 C-1 Westat

Appendix B: Participant Study



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service

National Institutes of Health
Bethesda, Maryland 20892

SECOND AND THIRD MAILINGS

Dear {City} Resident:

We recently invited you to participate in an important national survey sponsored by the U.S. Department of Health and Human Services (HHS). The goal of the Health Information National Trends Survey (HINTS) is to learn what health information people want to know and where they go to find it. Your responses will help us keep you, your family and members of your community better informed on the health issues that matter to you.

We have not yet received your completed questionnaire. To make sure HINTS provides accurate information, we need all the households invited to participate in this year's HINTS to complete the survey. If you did send back your survey and it crossed in the mail with this letter, thank you for the time you took to help make this study a success. In the event that your questionnaire was misplaced, an additional copy is enclosed.

In order to make sure we get responses from a random sample of people, we ask that the adult in your household with the next birthday complete and return this questionnaire in the next two weeks.

Additional information about HINTS is available at: hints.cancer.gov. If you have any questions, or would like to complete this survey in a language other than English or Spanish, please call Westat toll free at 1-888-738-6805.

Thank you in advance for contributing to this important national study.

Sincerely,

Bradford W. Hesse, Ph.D.
HINTS Project Officer
National Institutes of Health
U.S. Dept of Health and Human Services

Si prefiere recibir la encuesta en español, por favor llame al 1-888-738-6812.

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