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EDUCATING PROVIDERS REGARDING THE BLACK WOMEN'S HEALTH STUDY BREAST CANCER RISK CALCULATOR IN A RURAL PRIMARY CARE SETTING: A QUALITY IMPROVEMENT PROJECT

by

Shelby Ashton Holliday

A Doctoral Project
Submitted to the Graduate School,
the College of Nursing and Health Professions
and the School of Leadership and Advanced Nursing Practice
at The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Nursing Practice

Approved by:

Dr. LaWanda Baskin, Committee Chair
Dr. Marti Jordan, Committee Member

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ABSTRACT

Breast cancer risk (BC) prediction algorithms can allow referrals for identified high-risk individuals for further tests like mammography. Unfortunately, there is not yet a reliable method for predicting Black women's risk of developing BC in the United States (U.S.). Compared to White women, Black women in the U.S. are at an increased risk of developing BC at a younger age and experiencing a worse prognosis (Palmer et al., 2021). Race-based tumor inequalities and other social and health factors contribute to BC disparities. These disparities include limited access to care, inadequate health education, financial constraints, and poor patient-provider relations (Wheeler et al., 2013).

Moore's Outcomes Framework laid the foundation for this Doctor of Nursing Practice (DNP) quality improvement (QI) project. The framework considered engagement, community, contentment, productivity, patient well-being, and training outcomes. Because of the project's focus on the importance of interpersonal relationships in influencing health outcomes, the Principal Investigator (PI) also drew on Dr. Jean Watson's theory of human caring.

This pilot study aimed to disseminate information about the Black Women's Health Study (BWHS) Breast Cancer Risk Calculator (BCRC) and the underlying health inequalities that inspired its creation for rural health care providers in South Mississippi using the Plan-Do-Study-Act cycle (PDSA). The purpose of this study was to determine if educating rural Mississippi providers on the BWHS BCRC would improve their knowledge of the tool's potential utility in primary care and change their perceptions of the risk of BC among younger Black women. The project addressed the eight

fundamental components of the DNP Essentials, which lay out the foundational skills and knowledge that must underpin all forms of advanced nursing practice.

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I want to express my gratitude to Dr. LaWanda Baskin for her encouragement and for serving as my Faculty Advisor and Committee Chair throughout my Doctor of Nursing Practice studies at The University of Southern Mississippi. Thank you to Dr. Marti Jordan, who served on my Graduate Committee, and Jeanne Stewart, who offered invaluable help and demonstrated exceptional editing and formatting skills. With great appreciation, I thank Black Women's Health Study Principal Investigator Dr. Julie Palmer for her permission to utilize the Black Women's Health Study Breast Cancer Risk Calculator instrument for my doctoral project. Additionally, the assistance of Karen Bedells NP-C was crucial to the success of my doctoral research and the challenging process of recruiting participants for the study. Every one of you has my sincere gratitude for everything you have done.

DEDICATION

I dedicate this doctoral project to my family. I wish to express my sincere appreciation for your selfless support in every way during all of my educational endeavors. Your support was instrumental in ensuring my success. You have my deepest gratitude for all that you have done to help me reach my full potential.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ILLUSTRATIONS

LIST OF ABBREVIATIONS

ACS	American Cancer Society
BC	Breast Cancer
BCRAT	Breast Cancer Risk Assessment Tool
BCRC	Breast Cancer Risk Calculator
BU	Boston University
BWHS	Black Women's Health Study
CE	Continuing Education
CiNA	Cancer in North America
DNP	Doctor of Nursing Practice
IRB	Institutional Review Board
LMDR	Lower Mississippi Delta Region
MD	Medical Doctor
NAACCR	North American Association of Central Cancer Registries
NCI	National Cancer Institute
NP	Nurse Practitioner
PCP	Primary Care Provider
PDSA	Plan-Do-Study-Act
PI	Principal Investigator
PICOT	Population, Intervention, Comparison, Outcome, Time
QI	Quality Improvement
SDM	Shared Decision Making
TC	Tyrer-Cuzick Risk Model

U.S.	United States
USM	The University of Southern Mississippi

CHAPTER I – INTRODUCTION

Background

Health care providers use algorithmic BC risk prediction to identify high-risk patients for mammograms or other screenings. The absence of a risk prediction model for BC specific to Black women in the U.S. is a relevant topic of concern. Black women in the U.S. are more likely than White women to acquire BC at a younger age and have a worse prognosis (Palmer et al., 2021). Research on the effects of BC done by bodies like the Slone Epidemiology Center at Boston University (BU) shows that Black women are a target group quite susceptible to BC risks earlier in life. Moreover, as per the analysis of the National Cancer Institute (NCI), another study done by the Black Women's Health Study (BWHS) concerning the Breast Cancer Risk Calculator (BCRC) shows the group as more susceptible to suffering from early signs of BC risk compared to other groups of women in the U.S.

Significance

To assist with screening and genetic testing, primary care providers (PCP) may now utilize the BWHS BCRC for Black female patients ages 30-70 years to support screening recommendations, especially for young Black women in the U.S. (Palmer et al., 2021). According to researchers at BU, the BWHS BCRC is user-friendly. Elemental data can remain collected through questionnaires, surveys, and other research practices focused on engaging the target population in the research.

The tool was derived from epidemiologic data from three case-control studies of Black women in the U.S. and calibrated using 15 years of follow-up data from 51,780 BWHS participants (Palmer et al., 2021). The BCRC is especially effective for Black women between 30 and 70 and their PCP or other health care providers. Practitioners may identify which young Black women are most at risk for developing BC before reaching the typical and recommended age for screening.

On average, Black women in the U.S. are younger and more likely than White women to be diagnosed with aggressive or advanced forms of BC (Palmer et al., 2021). Their BC mortality rate is also higher than that of other women, regardless of race or ethnicity (National Cancer Institute [NCI], 2021). Health care providers' usage of this technology might lead to earlier diagnosis and fewer fatalities.

Problem Statement, Clinical Question, and PICOT Description

Risk-based BC screening is gaining traction around the globe. This service, including risk assessment and advice on primary prevention, may fall under the purview of primary care. However, although PCPs often report collecting information on a patient's BC family history, they seldom apply quantitative methodologies to include other risk factors (Bellhouse et al., 2021).

Analyzing data associated with BC is also effective in the context of finding evidence-based research on the PICOT question: (I) Will educate (P) Rural Mississippi providers on the BWHS Breast Cancer Risk Calculator (O) to increase their understanding of the application's use in primary care (C) and successfully change the provider's perceived risk of breast cancer in younger Black women (T) over weeks?

Available Knowledge

BC incidence rates have risen by 0.5% yearly, according to the American Cancer Society (ACS) (American Cancer Society [ACS], 2022a). More women are diagnosed with BC each year, making preventive screening in primary care increasingly necessary.

Systematic studies reveal that PCPs frequently play a reactive role in BC risk assessment, focusing mainly on gathering family history and identifying women at elevated risk (Bellhouse et al., 2021). Screening patients individually for heightened cancer risk is increasingly important in advancing cancer prevention efforts.

Over the last 40 years, the topic of racial inequalities in BC mortality among Black women in the U.S. has been widely documented (Miles, 2020). The ACS reports BC as the leading cause of cancer mortality in Black women (American Cancer Society [ACS], 2022b). On average, Black women in the U.S. are diagnosed younger than White women and are more likely to be diagnosed with aggressive or advanced types of BC.

"They also are more likely to die from breast cancer than women of all other racial and ethnic groups" (NCI, 2021). Black women are 41% more likely to die from BC than White women, despite having a lower probability of being diagnosed with the disease. This disparity is even more concerning when contrasted with other communities, such as the rural Delta region. In Mississippi and Louisiana, the disproportionate BC death rate for Black women exceeds 60% (ACS, 2022b).

Several risk models have been established, primarily for Caucasian women residing in North America and Western Europe (Brentnall & Cuzick, 2020). The NCI’s Breast Cancer Risk Assessment Tool (BCRAT), also known as the Gail Model, is the most often used BCRC in the U.S., followed by the Tyrer-Cuzick Risk Model (TC) (Klassen et al., 2022). The BWHS BCRC is more accurate than previous risk models and better assesses Black women's BC risk than other models (Palmer et al., 2021).

BC screening recommendations from PCPs are critical for their patients. If appropriately implemented, academic details might help PCPs better prescribe necessary screenings for those at risk of BC. The Healthy People 2030 initiative's national cancer prevention and early detection goals necessitate adjustments in professional training and educational opportunities (Office of Disease Prevention and Health Promotion [ODPHP], 2022). Studies have shown that PCPs' lack of knowledge about BC risk assessment and management is a significant obstacle to a risk-based approach to BC screening (Bellhouse et al., 2021). Education for health care providers on the significance, purpose, and implementation of the new BWHS BCRC for Black female patients is needed.

Needs Assessment

All-female patients must screen for BC risk using a mix of BCRCs and a thorough history of risk factors. According to Klassen (2022), there are several BCRCs available, but only a few stay constantly integrated with clinical settings. Aside from the TC Model, the most generally used BCRC in the U.S. is the NCI BCRAT, often known as the Gail Model (Klassen et al., 2022).

These tools cannot predict the cancer risk of Black women as effectively since they focus on assessing patients using data mainly acquired from White women (Palmer et al., 2021). Age-based or *one size fits all* BC screening overlooks the unique risk variability of each person. However, just a few reports apply the multivariate risk assessment methodologies used by health care professionals (Bellhouse et al., 2021).

PCPs often gather information on family BC history. Due to a lack of knowledge and experience, they seldom apply quantitative risk assessment approaches that integrate extra risk factors (Bellhouse et al., 2021). PCPs' lack of understanding of BC risk assessment and treatment is a significant barrier to risk-based BC screening (Bellhouse et al., 2021). This DNP project designed, implemented, and evaluated an educational campaign to enhance providers' awareness of BC risk perception in rural Mississippi primary care and the BWHS BCRC. The project was accomplished through three objectives:

1. Determining the best way to communicate risk data
2. Educating providers about the BWHS BCRC application
3. Assessing the application education's potential to successfully change the provider's perceived risk of BC in young Black women.

Synthesis of Evidence

The ACA's *2022 Cancer Facts & Figures for African American/ Black People* states that Black women are 41% more likely than White women to die from BC despite equal or lower incidence rates. The large discrepancy in BC death rates between Black and White women likely reflects fewer malignancies discovered early (57% vs. 67%) and less access to high-quality treatment (ACS, 2022b). For every stage of diagnosis, the five-year survival rate for Black women is much lower than that of their White counterparts.

About 82% of Black women diagnosed with BC survive for at least five years, compared to 92% of White women diagnosed, and are twice as likely as White women to get triple-negative BC. A lack of surgery and treatment increases their risk of death from these tumors by 30% (ACS, 2022b). As of 2019, BC is the leading cause of cancer death among Black women.

According to estimations provided by the ACS, there will be a total of 287,850 women in the US diagnosed with invasive BC in the year 2022. Compared to women of other races and ethnicities, Black women have a greater mortality rate due to BC. Before age 40, more Black women than White women are diagnosed with BC. Regarding BC mortality, racial differences are most notable in Louisiana and Mississippi. According to the ACS, In Louisiana and Mississippi, more than 60% of Black women die from BC (ACS, 2022b).

Screening, public awareness, and improved treatments have contributed to BC declines. Early detection and effective treatment are the best ways to reduce BC-related fatalities. The delivery of coordinated, ongoing, culturally, and socioeconomically sensitive BC care is crucial to ensure equal receipt of guideline-indicated therapies and to improve outcomes across racial groups.

The article *Disparities in Breast Cancer Treatment and Outcomes: Biological, Social, And Health System Determinants and Opportunities for Research* explains the underlying causes of the discrepancies in treatment and results in BC. The literature review on racial inequalities in BC mortality focuses on the disparities in treatment and potential areas for further investigation. Despite the increased availability of mammography across diverse races, racial inequalities in BC mortality rates continuously demonstrated increased experience of challenges among minorities like the Black population for several decades (Wheeler et al., 2013).

Black individuals are more susceptible to severe sicknesses such as BC than White individuals based on other health-related and unrelated concepts and practices. Evidence suggests that women of different races and ethnicities receive equal treatment and have equivalent outcomes (Wheeler et al., 2013). According to Wheeler et al. (2013), the analysis summarizes literature highlighting the causes of racial differences in BC mortality as a practical starting point for focusing on effective treatment of such disparities in the future while advancing research on the study.

Some of the aspects worth consideration and analysis in the study include highlighting the role of structural racism in restricting access to health. Furthermore, an examination of socioeconomic disparities was conducted, as well as an assessment of their involvement in causing a lack of high-quality and timely cancer diagnosis, treatment, detection, and screening (Wheeler et al., 2013). Future studies should examine systemic racism's impact on health and create countermeasures.

Recommendations could include increasing diversity in clinical trials, provider education, and health system financial incentives for equitable cancer care. One of the most important goals should be to ensure that all health care providers and patients have access to the same high-quality resources (Wheeler et al., 2013). Policymakers may benefit from considering the possibility that variations in the quality of cancer treatment received by various patient populations are related to sociodemographic and health system characteristics.

Using Warnecke's Model for Analysis of Population Health and Health Disparities in the review *Leveraging Cancer Registry Data to Study Breast Cancer Disparities in The Lower Mississippi Delta Region*, BC incidence in the Delta region was analyzed. Individual-level data on instances of BC diagnosed in the lower Mississippi Delta region (LMDR) States between 2012 and 2014 were drawn from the Cancer in North America (CiNA) Deluxe File. This report draws its information from a submission made to the North American Association of Central Cancer Registries (NAACCR) in December 2016.

Rural regions make up more than 40% of the Delta region, with over 90% of those locations lacking medical professionals and facilities. Deprived of access to screening programs, poor and rural women have increased odds of late-stage cancer. Because of these traits, the area is susceptible to health inequities, especially those related to BC. A high-quality source of population-level cancer data, CiNA Deluxe dataset, provided by the NAACCR, proved a valuable resource for assessing BC incidence and staging in a wide range of Mississippi Delta locations (Zahnd, 2018).

Compared to the rest of the U.S., the Delta region of the South has a more significant percentage of the Black population, lower income levels, and a rural landscape. It also has a far greater death rate in BC than in the rest of the country. One in five Delta inhabitants lives below the poverty level, and approximately one-third of the population is Black (Zahnd, 2018).

The mortality rate from BC among Black women in the Delta region is higher than that among White women in the Delta region and higher than among Black women statewide (Zahnd, 2018). Delta region Black women exhibited lower rates of early BC but higher rates of late-stage tumors, even after accounting for age and other contextual variables. Those living in the Delta were more likely to be diagnosed with triple-negative BC than women elsewhere. This trait was shared by Black women, in contrast to White women.

Across all demographic categories, Delta women had a higher frequency of ambiguous subtypes (Zahnd, 2018). Aggressive BC subtypes, an advanced stage upon diagnosis, and limited access to mammography screening may contribute to increased death rates (Zahnd, 2018). Further research should examine whether unmeasured individual and environmental factors contribute to the inequities women in the Delta region suffer.

Search Words and Process

The literature search used identified keywords corresponding with the PICOT question. The keywords included in the search are *BWHS risk calculator, National Cancer Institute, breast cancer questionnaire, breast cancer screening, breast cancer statistics, Black Women, American Cancer Society, National Cancer Institute, and breast cancer models.* Search phrases, full text, publication dates from August 2013 to May 2022, English language, and human subjects were all included in the literature search. PubMed, ASCO publications, and Google scholar were the search engines employed. Results are limited to systematic reviews and meta-analyses published during the last ten years. PubMed yielded the most scholarly articles with 600 results according to the PICO query. ASCO produced a total of 241 articles. Using Google scholar, it was possible to conduct a more comprehensive search for literary papers made publicly available on various websites.

Focused Topics and Evidence-Based Findings

In the U.S., Black women have a disproportionately greater BC death rate and a younger diagnosis age than White women. However, BC risk prediction models have underperformed in this population thus far. According to Palmer et al. (2021), there has been an urgent requirement for a prediction model to be developed and validated using the findings of several studies conducted on Black women. There was significant calibration in the new BWHS BCRC model in the prospective cohort of Black women, utilizing data from nearly 3,000 Black women with BC and 3,000 control women (Palmer et al., 2021). Both groups provided data for the model's development. For women under

40, the model's discriminatory accuracy was higher than existing models, and it performed best (Palmer et al., 2021).

Only data collected from Black women in the U.S. was engaged in the design and evaluation process of the instrument. In order to evaluate a woman's absolute BC risk, it considers their medical and reproductive history, as well as the history of BC and prostate cancer among their first-degree relatives (parents, siblings, children). Women themselves may provide all of the model's variables. This new BC risk prediction tool can help PCPs drive screening recommendations or referrals for genetic testing, particularly for young Black women, resulting in earlier identification and reduced mortality.

Rationale, Theoretical Framework, Models, Concepts/Theories

Research in biomedicine and health services does not always translate into better patient care. As a result, the care patients receive does not always match their expectations or the care they might and should receive. Health care providers rely on continuing education (CE) to stay current in their fields of expertise so that they may give their patients the best possible treatment. Learning sciences research findings has not always been included in continuous education in the health professions, nor has it helped health care practitioners improve patient health by adjusting their clinical behavior (Sud et al., 2021).

Moore's Outcomes Framework served as the foundational concept for the elements that comprised this project. The framework's seven outcome levels include patient health, satisfaction, learning, participation, competence, performance, and community (Sud et al., 2021). Provider education and clinical practice at each level aim to improve patient health. In this project, the outcomes framework evaluated both the learners and the education activities.

Table 1

Moore's Outcomes Framework

Outcomes Framework	Description	Sources of Data
1; Participation	Providers' participation rate in instructional activities	Consent Qualtrics response tracking
2; Satisfaction	The extent to which participants' expectations regarding the setup and delivery of the educational activity were satisfied.	Post-educational activity survey responses from providers
3a; Learning: Declarative Information	The extent to which participants can share what they learned from the educational experience.	Objective data: Knowledge survey conducted before and after the session Subjective data; Providers' self-reported knowledge acquisition
3b; Learning: Procedural Understanding	The percentage of participants who say they know how to achieve the educational activity's goals.	Objective data: pre-and post-surveys of knowledge Subjective data: Provider self-reported increase in knowledge
4; Competence	The extent to which learners demonstrate the skills that the educational activity expected them to have in a classroom context.	Subjective data: Provider self- evaluation of cultural competency and perceived relevance
5; Performance	The extent to which learners put what they learned in the learning program to use.	Subjective information: Self-assessment of performance by providers

Table 1 (continued).

5; Performance	The extent to which learners put what they learned in the learning program to use.	Subjective information: Self-assessment of performance by providers
6; Patient Well-being	The perceived extent to which patients' health may improve due to changes in how participants practice regarding the BWHS BCRC educational activity.	Subjective information: Provider self-reported perceived degree of the possible change in patient well-being.
7; Community Well-Being	The degree to which the general public's health is considered to improve because of changes in how participants practice the BWHS BCRC educational activity.	Subjective: Provider self-report of perceived degree of a possible change in population health-status

(Sud et al., 2021).

Economic and administrative models strongly influence conventional health care. In contrast, the role of human care on health outcomes is central to Dr. Jean Watson's human caring theory (Pajnkihar et al., 2017). Jean Watson's caring philosophy promotes compassion, empathy, and an emotional, holistic approach to treating patients.

Primary care implications include understanding unconscious biases and ethnocentrism, assessing providers' complicit roles in racism, and advocating for improved Black female health. Rural primary care requires a multidimensional understanding of health care quality and inequities. The patient/provider interaction must be culturally competent.

Educating practitioners about the BWHS BCRC explored individual and group participation in maintaining or reducing health inequalities. As part of the assessments of education and response, the PI obtained data on providers' self-reported level of performance, perceived degree of the possible change in patient health status, and perceived degree of the possible change in population health status presented following education on the BWHS BCRC.

Specific Aims

Current recommendations support mammographic screening at ages 40, 45, or 50, focusing on shared decision-making (SDM) between patients and health care professionals, according to Palmer (2021). The study aims to educate rural providers in South Mississippi about the BWHS BCRC. The cumulative statistics supplied by a pre- and post-educational survey completed by participating providers constituted the project's quantifiable goal. Education on this innovative tool facilitated the opportunity for SDM between young Black women and their PCPs. This DNP project addressed whether educating rural Mississippi providers on the BWHS BCRC would increase their understanding of the application's use in primary care and successfully change the provider's perceived risk of BC in younger Black women over two weeks.

Doctor of Nursing Practice Essentials

The DNP Essentials identify the abilities necessary for all advanced nursing practice professions. DNP Essentials offer scientific foundations for institutional and system management for QI. It also offers systems thinking; clinical research, and analytical techniques for evidence-based treatment; patient care and information systems technologies for the advancement and growth of health care transformation; medical policies for advocacy in health care; collaboration among professionals to improve patient and population outcomes; preventive care and community health for the sake of public health system and the advancement of nursing practice (American Association of Colleges of Nursing [AACN], 2022). This DNP project addressed the eight fundamental components of the DNP Essentials, which describe the critical competencies required for all advanced nursing practice professions.

Essential I: Scientific Underpinnings for Practice: Defining the scientific concepts of BC risk assessment and the significance of the problem in enhancing health care delivery and patient outcomes satisfied this essential.

Essential II: Organizational and Systems Leadership for QI and Systems Thinking: Addressing this essential, efforts were made to educate rural health care providers about a BC risk screening method that is effective for Black women in the U.S. and to evaluate the prospective practice outcomes.

Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice: In order to meet this essential, the QI effort incorporated the BWHS risk assessment tool and educated providers on its application. It encouraged a shift in practice, allowing increased access to BC risk screening for Black female patients.

Essential IV: Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care: Instructing about the BWHS BCRC instrument to encourage practice change in rural primary care settings was a crucial part of this essential. Evidence from research technologies and the efficiency of the BWHS tool in identifying at-risk Black women for BC prompted this project.

Essential V: Health Care Policy for Advocacy in Health Care: The research satisfied this essential because it raised consciousness about the need to consider cultural factors while caring for patients and revealed new ways to do so.

Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes: As a result of the project's focus on collaboration and open lines of communication among providers, patients, and other health care professionals, it was possible to accomplish this essential.

Essential VII: Clinical Prevention and Population Health for Improving the Nation’s Health: In order to meet this requirement, practitioner education and dissemination of information regarding the BWHS BCRC tool occurred, which improves screening efforts and fosters more open lines of communication between patients and health care professionals regarding BC risk assessment.

Essential VIII: Advanced Nursing Practice: Evidence analysis, data synthesis, data presentation, and post-presentation assessment of the information effect fulfilled the essential. Learning more about this technology and pushing for its implementation is an advanced nursing practice initiative for rural health care professionals and PCPs.

Summary

CE allows health care practitioners to keep updated in their fields of expertise so that they may deliver the best possible care to their patients. However, Biomedical and healthcare research does not necessarily result in better clinical outcomes. Learning sciences research findings are not always incorporated into CE in the health professions.

This project utilized a conceptual foundation based on Moore's Outcomes Framework. Evaluation of both the participants and the instructional methods occurred. The framework has seven layers of outcomes: involvement, community, contentment, productivity, patient wellness, and training.

Additionally, the use of Dr. Jean Watson's human caring theory focused on human care's impact on health outcomes. This philosophy promotes compassion, empathy, and an emotional, holistic approach to treating patients. Therefore patient/provider interaction must be culturally competent, which was achieved by training practitioners about the BWHS BCRC.

This DNP QI project educated rural practitioners in South Mississippi about the BWHS BCRC and the ongoing health inequity that led to its inception. The DNP project addressed whether educating rural Mississippi providers on the BWHS BCRC would increase their understanding of the application's use in primary care and successfully change the provider's perceived risk of BC in younger Black women over two weeks. The project addressed the eight fundamental components of the DNP Essentials, which lay out the foundational skills and knowledge that must underpin all forms of advanced nursing practice.

CHAPTER II - METHODOLOGY

The study outlined instructional objectives for educating providers about the potential use of the BWHS BCRC in rural primary care settings. By informing practitioners in rural areas about the BWHS BCRC and its capabilities, we can better assess the risk of BC in young Black women aged 30 and above who present to primary care clinics. BC disparities emerge from racial tumor variations and modifiable social and health systems variables such as lack of access to care and health education, financial constraints, poor patient-provider relations, and systemic impediments (Wheeler et al., 2013). Health care providers need to be aware of a substantial but often unacknowledged health disparity because they may not perceive or comprehend how their pro-action or abstention impacts their patients. Conduction of educational intervention and pre- and post-surveys assess changes in awareness about the disparity and the new BWHS BCRC application.

Population and Sample

Participants of this project were required to be at least 18 years old, possess either a medical degree or an advanced practice degree as an NP, and work within the participating rural health system in South Mississippi. For this study, the PI utilized Qualtrics to generate a survey distributed to prospective respondents by company email from a key stakeholder. Invitation to participate in the study involved eight NPs and one MD. Out of 9 potential participants, 6 (n=6) participated in the study

Intervention

PDSA Cycle

Planning, Doing, Studying, and Acting are all parts of the PDSA cycle. The PDSA cycle determines the suggested change that would lead to improvement and assesses that (Institute for Healthcare Improvement [IHI], 2022).

Plan. For those who participated in the study, the PI made available a timely, comprehensive, and convenient survey with an emphasis on providing educational information on the history, design, and administration of the BWHS BCRC.

I. Study design: Quantitative and qualitative survey with pre and post-test design, including an educational voice-over PowerPoint presentation

II. Setting: South Mississippi rural health organization

III. Sample: 6 health care providers, including 6 NPs

IV. Data Collection: Data obtained from participants' pre-and post-test survey responses

V. Data analysis: Utilization of Qualtrics, T-score, and P-value for confidence interval and statistical significance

VI. Protection of Human Subjects: Issuance of informed consent to Rural South Mississippi providers prior to participation in study

Do. By having a key stakeholder distribute the participant recruitment email to the providers' organizational email addresses, the PI notified potential participants of the project's intent and provided them with a link to the survey. Participants were made aware of the requirements and conditions for participation as specified in the informed consent. Their rights, as well as any ethical considerations, were discussed. Participants were furnished with the PI's contact information and encouraged to contact the PI with comments, questions, or concerns for assistance.

The PI developed a comprehensive Qualtrics survey containing informed consent, demographics, pre-education survey, assessment of clinical knowledge, provider education, post-education survey, re-assessment of knowledge, and self-reported cultural sensitivity and perceived relevance. The educational intervention in the survey consisted of a voice-over PowerPoint presentation. The entire survey took approximately 10 minutes to complete. Respondents received two weeks to respond to the survey, including weekly email reminders.

Study. The survey questions required providers to self-assess clinical knowledge and reevaluate prior clinical knowledge and newly acquired material. Participant self-assessment included indications and likelihood of employing the BWHS BCRC in practice and perceived cultural competency and relevancy. The questions concentrated on the BWHS BCRC and examined the knowledge base and understanding of proper application use.

Act. The evidence synthesis focused on the history and application of the BWHS BCRC screening application. The intervention increased clinicians' understanding of the BWHC BCRC and identified impediments to implementing the tool using provider self-assessment and analyzing provider responses to survey questions. The intervention's action encouraged practitioners to engage in self-reflection and to discuss the BWHS BCRC with patients and peers in the clinical context.

Measures

Inclusion criteria

Inclusion eligibility: consenting participants recruited by a key stakeholder and employed within the identified South Mississippi health system; clinical practice within rural areas of South Mississippi; 18 years of age or greater; and held either a medical degree or an advanced practice degree as an NP.

Exclusion criteria

Exclusion from the study sample: non-consenting persons, individuals not recruited by a key stakeholder and not employed within the identified South Mississippi health organization; those without clinical practice within rural areas of South Mississippi; fewer than 18 years of age; and anyone without either a medical degree or an advanced practice degree as an NP.

The survey obtained data from participants' pre-and post-test survey responses. The questionnaires used in the survey utilized a Likert Scale. The questionnaires were available online through email and linked to the *Qualtrics* survey. The quantitative and qualitative data collection of participants' survey responses occurred within *Qualtrics*.

Analysis

Data was solely collected from participants by the PI using *Qualtrics* software. Heavy reliance on quantitative data occurred. Providers aged 18 and up in rural Mississippi, where BC is high among Black women, were surveyed to determine the efficacy of the PICOT inquiry. The qualitative data contained the breadth and depth of information required to present the submitted responses' significance.

After collecting survey responses, the PI structured the data to communicate the results effectively. Qualtrics software was an essential tool for analyzing and graphing statistical data. The crosstabs allowed for multivariate examination, including analysis of p-value and t-test statistics.

Ethical Considerations

Rural South Mississippi providers were issued a letter of recruitment requesting informed consent as part of a voluntary survey. The Institutional Review Board (IRB) at The University of Southern Mississippi (USM) approved the project under protocol number (IRB Protocol #22-990). Maintenance of human subject protection occurred throughout the project.

Participation in the survey was optional, without monetary or other incentives. The participants did not receive any direct benefits from participating in the research study. Participation in the study posed foreseeable risks or discomforts. All information contained in the study remained anonymous, private, and used for research purposes only. Survey responses were stored in Qualtrics using a password-protected electronic format. No personally identifiable information was gathered. No names, emails, or IP addresses were recorded. Protection of confidentiality occurred. All survey replies will be destroyed upon completion of all graduation requirements. Participants were free to decline to participate, skip questions, or withdraw from the survey at any point without penalty, prejudice, or loss of benefits.

Project Timeline

The following is a summary of the project timeline. First, on April 27, 2022, the Faculty Committee approved the PI's DNP project proposal. On May 16, 2022, the

Southern Medical Consultants LLC Nursing Research Council furnished letters of approval and support for the project.

The USM IRB application submission in the expedited review category occurred on June 26, 2022. The USM IRB approved protocol #22-990 on June 6, 2022. Starting on August 1, 2022, and ending on August 15, 2022, respondents filled out the Qualtrics survey. The completion of the data analysis took place on September 15, 2022.

Submission of the completed project to the Project Chair for review happened on September 20, 2022. On September 21, 2022, the Graduate School Committee received the DNP project. The dissemination of the DNP project commenced on September 30, 2022, during The USM DNP Scholarship Day.

Summary

The evidence synthesis focused on the history and application of the BWHS BCRC screening application. The intervention aimed to promote provider understanding of the BWHC BCRC, identified impediments to implementing the tool using provider self-assessment, and analyzed provider responses to survey questions. Utilizing the PDSA cycle, the interventional framework created the project's foundation. Creating a timely, comprehensive, and convenient survey with an emphasis on providing education on the history, design, and administration of the BWHS BCRC provided concise provider education and evaluation. At the same time, the protection of human subjects remained intact.

Plan: Participants were given a survey to complete before and after an educational intervention about the BWHS BCRC. At the end of the presentation, attendees were asked to rate the BWHS BCRC education on how helpful they found it and the perceived impact of the tool's use in primary care.

Do: Practitioners responded to a Likert-scale survey regarding the BWHS BCRC after receiving training and completing the pre-survey.

Study: Providers' knowledge and aptitude for using the BWHS BCRC in rural primary practice were assessed.

Act: The providers received a post-survey to facilitate introspective self-evaluation upon education and reassessment of their clinical knowledge.

CHAPTER III – RESULTS

Recruitment from the sample of six NPs from the rural South Mississippi health organization began with a participant recruitment email (Appendix B) delivered from the PI to a key stakeholder on August 1, 2022. The stakeholder then distributed the participant recruitment email to potential participants consisting of 9 providers, including one MD and eight NPs. Of the nine providers contacted, six participated in the study.

The participant recruitment email sent to the sample population announced the voluntary, anonymous linked survey, available from August 1, 2022, through August 15, 2022. The distribution of reminder emails with a link to the survey occurred on August 8, 2022, and August 15, 2022. The research ended on August 15, 2022, at midnight.

Process

Recruitment efforts led to recorded responses from eight providers. One completed the survey entirely, five completed every question except for the multiple-choice post-survey question "I am not likely to use the BWHS Breast Cancer Risk Calculator because:" and two declined informed consent to participate. The total response rate was 88.89%. The response rate was 66.67% of the sample population after eliminating the two respondents who declined participation.

Pre-Education Survey

Demographic Data Descriptive Statistics

The six completed responses revealed that none were aged 45-54 or >65. Respondents between the ages of 18-24 accounted for 16.67% (n=1) of respondents, ages 25-34 accounted for 33.33% (n=2), ages 35-44 accounted for 16.27% (n=1), and ages 55-

64 accounted for 33.33% (n=2). 83.33% (n=5) self-identified as female gender and 16.67% (n=1) self-identified as male gender.

Among respondents, 66.67% (n=4) self-identified their race as White, and 33.33% self-identified as Black/African American (n=2). One hundred percent (n=6) of respondents' current clinical roles as a provider were as NPs. No respondents had >10 or >20 years of experience within their role. Respondents with 1-3 years of experience accounted for 50% (n=3), 3-5 years of experience 16.67% (n=1), and >5 years of experience accounted for 33.33% (n=2).

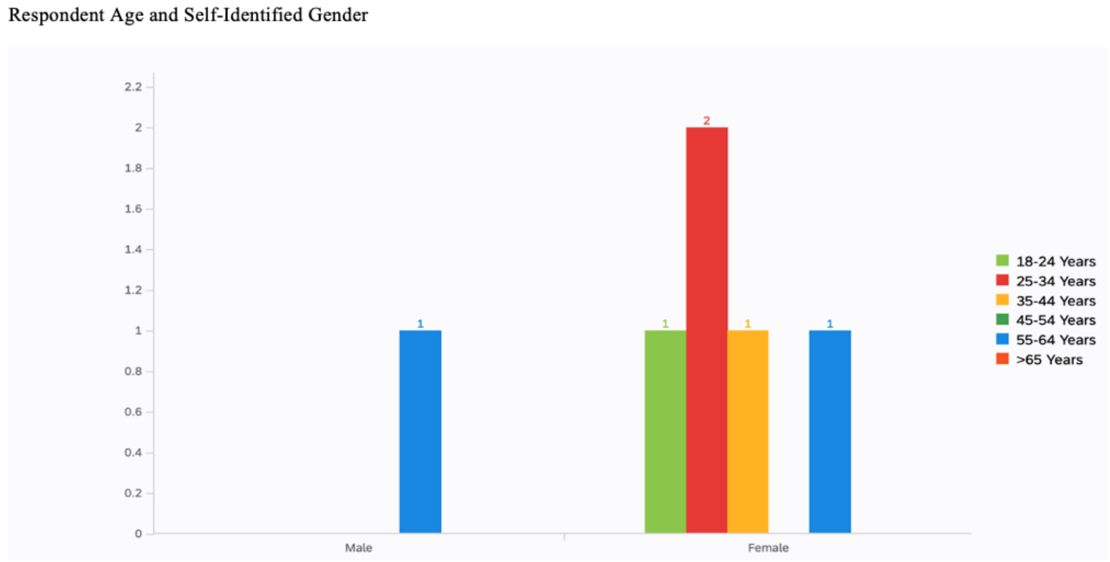

Respondent Age and Self-Identified Gender

Figure 1. Age and Gender Distribution of Respondents

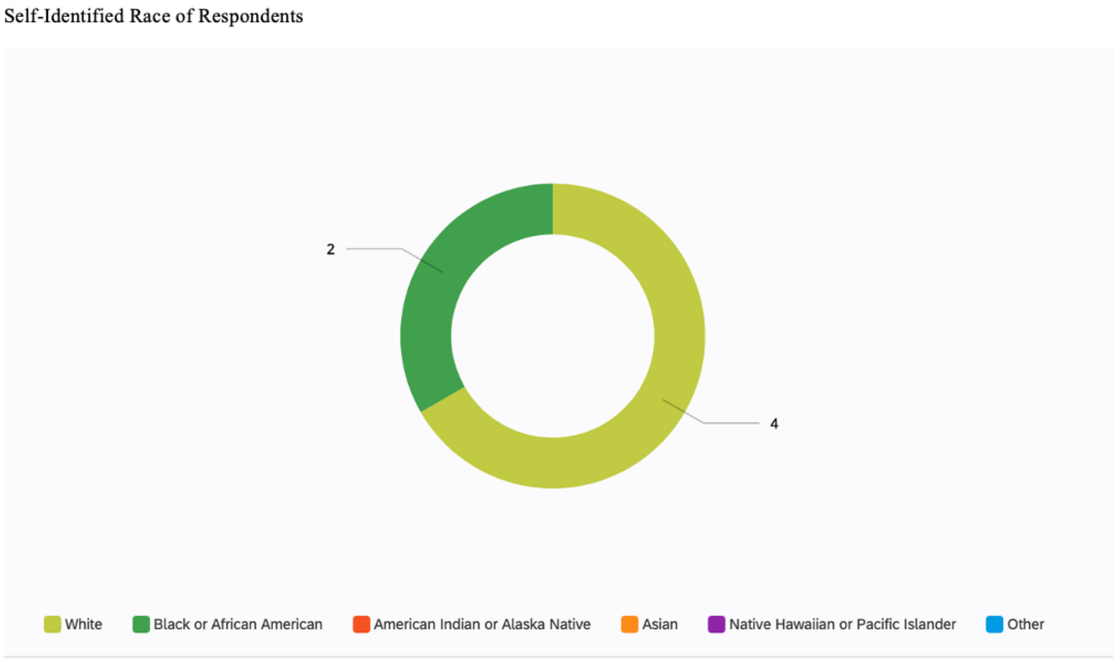


Figure 2. Self-Identified Race of Respondents

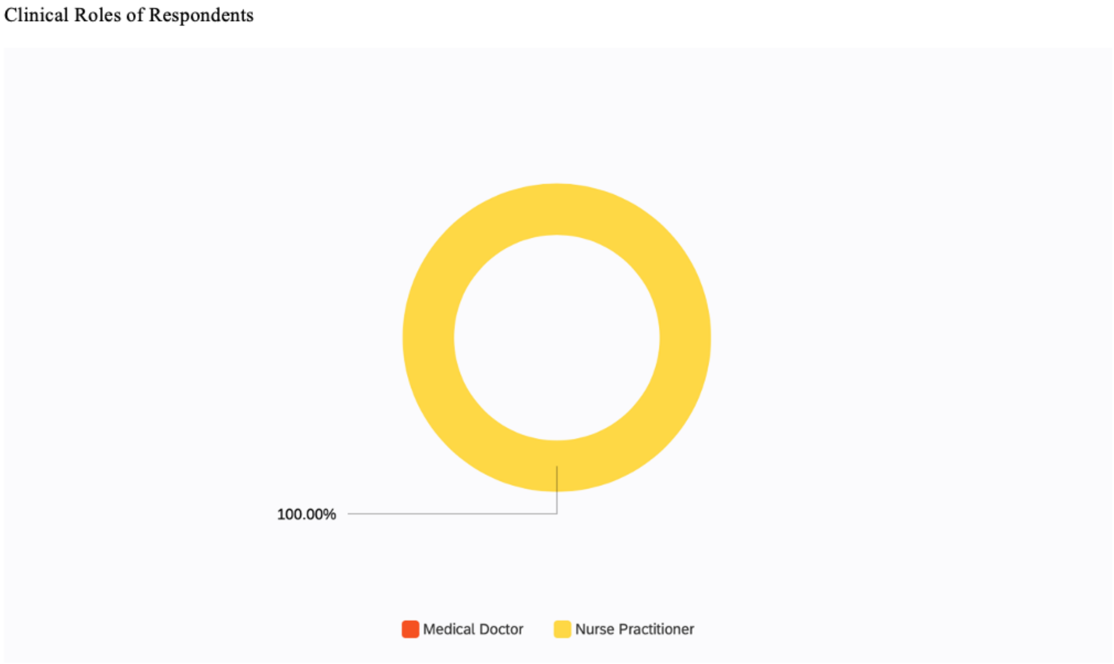


Figure 3. Clinical Roles of Respondents

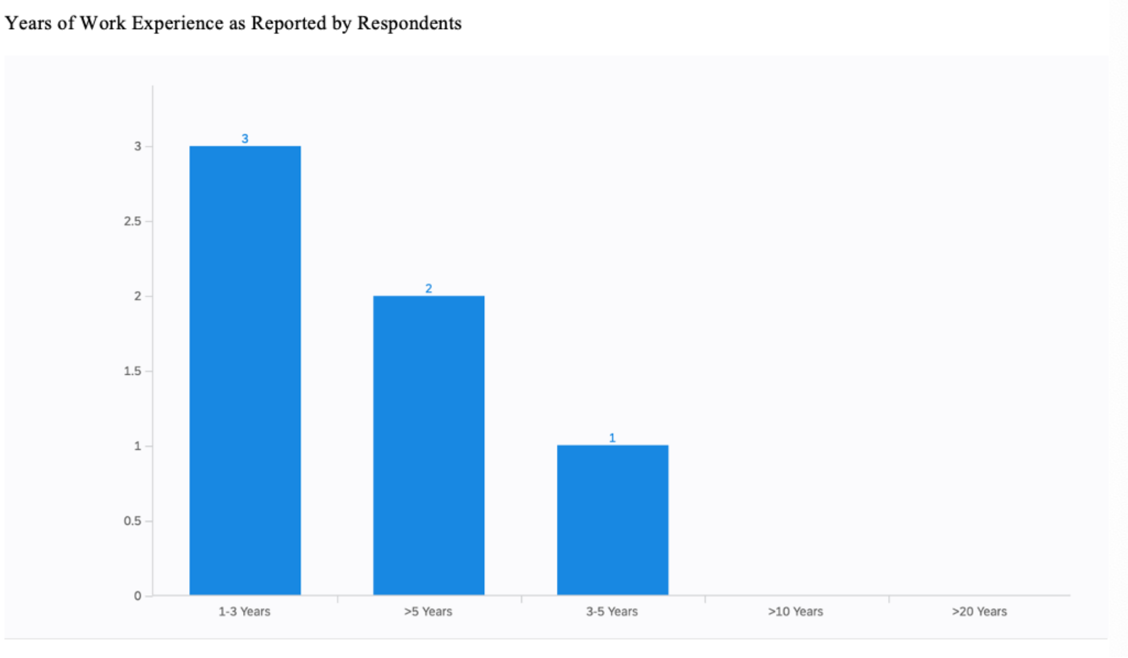


Figure 4. Years of Work Experience as Reported by Respondents

Assessment of Clinical Knowledge

Fifty percent (n=3) of respondents had an understanding of the BWHS before the educational intervention, and 33.33% (n=2) had an understanding of the BWHS BCRC before the educational intervention. 33.33% (n=2) respondents had ever had discussions about different BC risk assessment models with their patients, while 16.67% (n=1) had ever incorporated any BC risk assessment clinical tools, including models such as the Gail model into practice in primary care. One hundred percent (n=6) of respondents had never received any previous training on the BWHS BCRC.

83.33% (n=5) said that current BC risk assessment tools have not performed well, resulting in an underestimation of BC risk in Black women. One hundred percent (n=6) identified that compared with White women, Black women in the U.S. are younger at diagnosis, on average, and are more likely to be diagnosed with aggressive or advanced forms of BC. 83.33% (n=5) identified that the BWHS calculator gathers data using a woman's medical history, family history, and reproductive history. In comparison, 16.67% (n=1) selected only family history.

One hundred percent (n=6) of respondents identified that the data required to complete the BWHS BCRC may be gathered from the BWHS BCRC online questionnaire, the woman themself, the provider, and the medical record. 33.33% (n=2) selected that in Mississippi, Black women are more than 25% more likely than White women to die from BC. Fifty percent (n=3) selected more than 30% likely, and 16.67% (n=1) selected more than 60% likely.

Post-Education Survey

Re-Assessment of Clinical Knowledge

Following the educational intervention, respondents that had an understanding of the BWHS increased to 100% (n=6) from 50% (n=3), and 83.33% (n=5) compared to the original 33.33% (n=2) had an understanding of the BWHS BCRC. The 83.33% (n=5) of respondents who agreed that existing BC risk assessment tools have not performed well, resulting in an underestimating of BC risk among Black women, did not change. A decrease from 100% (n=6) to 83.33% (n=5) of respondents identified that compared with White women, Black women in the U.S. are younger at diagnosis, on average, and are more likely to be diagnosed with aggressive or advanced forms of BC. An increase from 83.33% (n=5) to 100% (n=6) of respondents identified that the BWHS calculator gathers data using a woman's medical history, family history, and reproductive history.

One hundred percent (n=6) of respondents again identified that the data required to complete the BWHS BCRC may be gathered from the BWHS BCRC online questionnaire, the woman themself, the provider, and the medical record. A decrease from 33.33% (n=2) to 16.67% (n=1) of respondents selected that in Mississippi, Black women are more than 25% more likely than White women to die from BC. Unchanged, 50% (n=3) selected more than 30% likely, and the selection more than 60% likely increased from 16.67% (n=1) to 33.33% (n=2).

Cultural Sensitivity and Relevance

Likert scale questions identified that 16.67% (n=1) respondents strongly disagreed, 33.33% (n=2) somewhat disagreed, and 50% (n=3) neither agreed nor disagreed that BC risk assessment questionnaires have too many demands on their time. 16.67% (n=1) strongly agreed, 16.67% (n=1) somewhat agreed, 16.67% (n=1) somewhat disagreed, and 50% (n=3) neither agreed nor disagreed that decisions on when to start BC screening should be made on a more individual basis rather than based only on someone's age. 50% (n=3) strongly agreed, 33.33% (n=3) somewhat agreed, and 16.67% (n=1) neither agreed nor disagreed that race-based BC risk assessment has a significant impact on treatment recommendations.

66.67% (n=4) strongly agreed, 16.67% (n=1) somewhat agreed, and 16.67% (n=1) strongly disagreed that the BWHS BCRC would be useful for the populations served in rural primary care clinics in Mississippi. 66.67% (n=4) strongly agreed, while 33.33% (n=2) somewhat agreed that the BWHS BCRC would be useful in the U.S. Black female population. 16.67% (n=1) strongly agreed, 33.33% (n=2) somewhat agreed, and 50% (n=3) neither agreed nor disagreed that they were interested in learning more about the BWHS BCRC. Only one survey respondent (n=1) completed the survey question, "I am not likely to use the BWHS BCRC because:" stating that they were not likely to use the tool because they do not know how to interpret the predictive results. 66.67% (n=4) strongly agreed, 16.67% (n=1) somewhat agreed, and 16.67% (n=1) neither agreed nor disagreed that they believed that this study's provided education and survey is beneficial for providers and their patients.

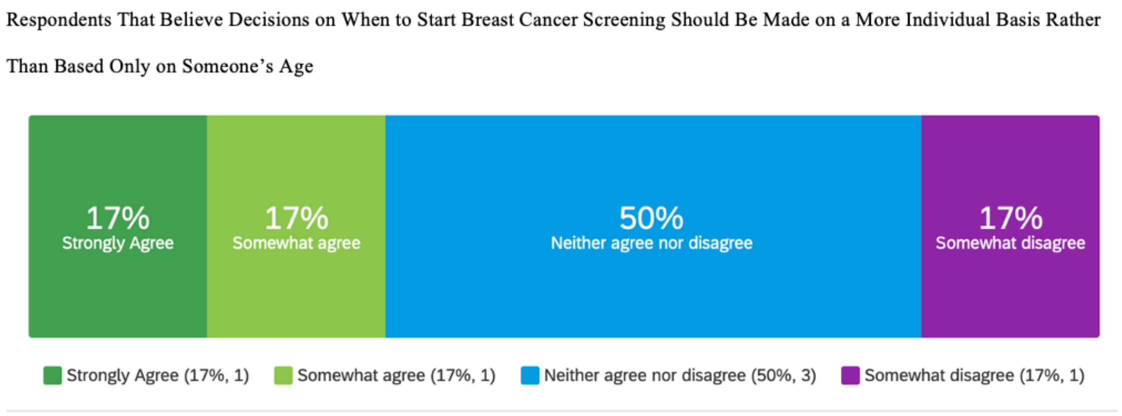

Respondents That Believe Decisions on When to Start Breast Cancer Screening Should Be Made on a More Individual Basis Rather Than Based Only on Someone's Age

Figure 5. Respondents that believe questionnaires that assess breast cancer risk have too many demands on their time

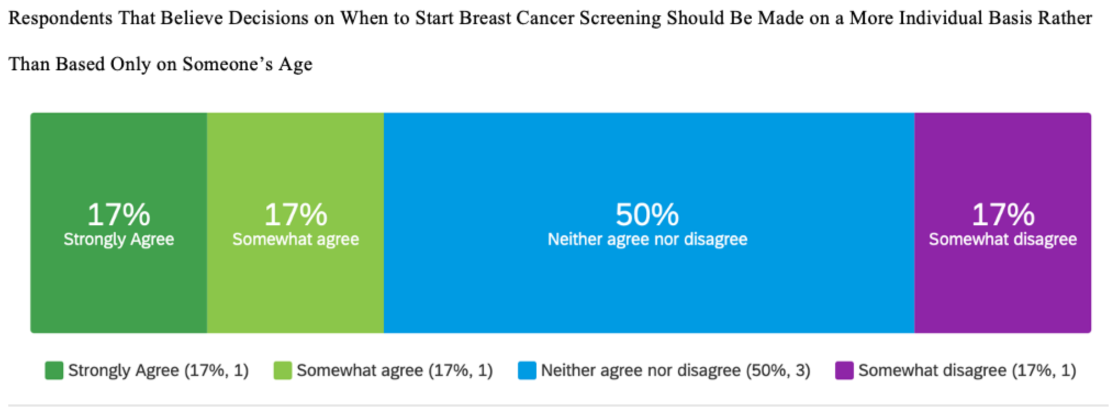

Respondents That Believe Decisions on When to Start Breast Cancer Screening Should Be Made on a More Individual Basis Rather Than Based Only on Someone's Age

Figure 6. Respondents that believe decisions on when to start breast cancer screening should be made on a more individual basis rather than based only on someone's age

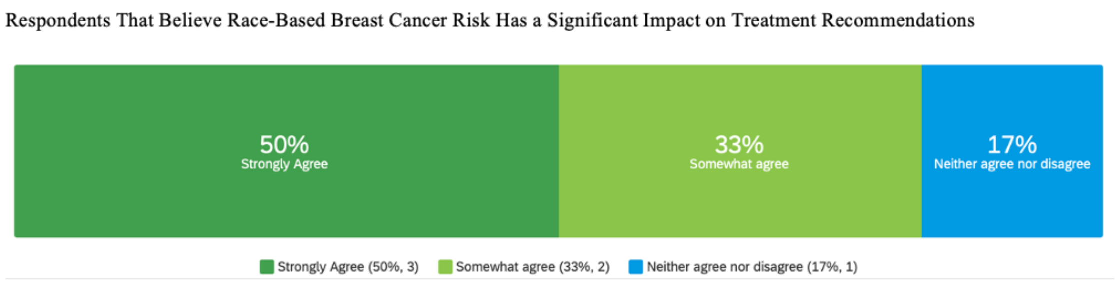

Respondents That Believe Race-Based Breast Cancer Risk Has a Significant Impact on Treatment Recommendations

Figure 7. Respondents that believe race-based breast cancer risk assessment has a significant impact on treatment recommendations

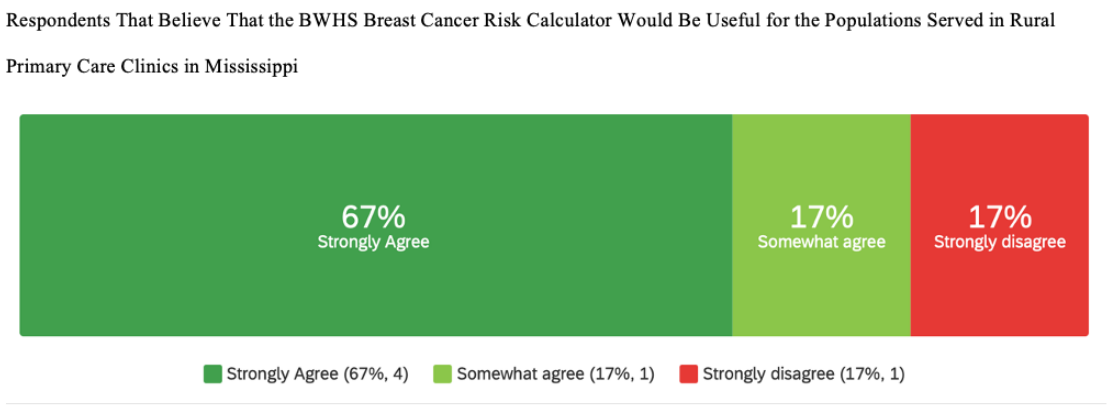


Figure 8. Respondents that believe that the BWHS Breast Cancer Risk Calculator would be useful for the populations served in rural primary care clinics in Mississippi

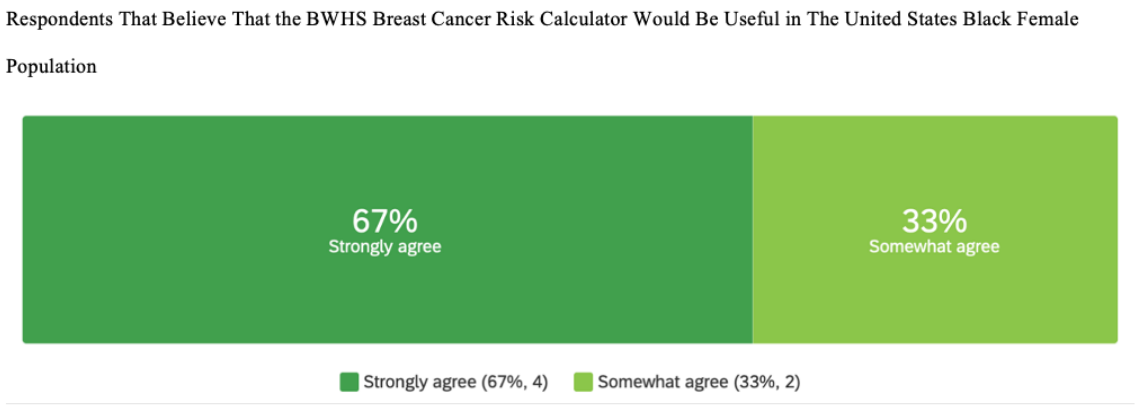


Figure 9. Respondents that believe that the BWHS Breast Cancer Risk Calculator would be useful in the United States Black female population

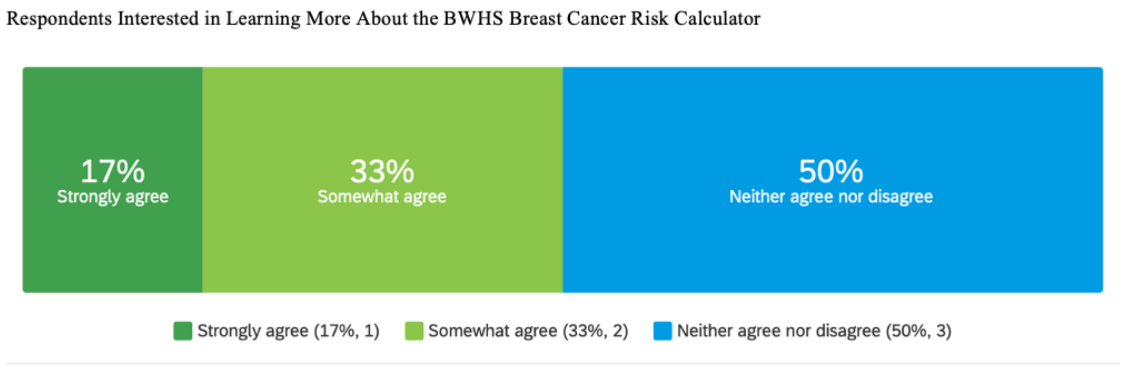

Respondents Interested in Learning More About the BWHS Breast Cancer Risk Calculator

Figure 10. Respondents interested in learning more about the BWHS Breast Cancer Risk Calculator

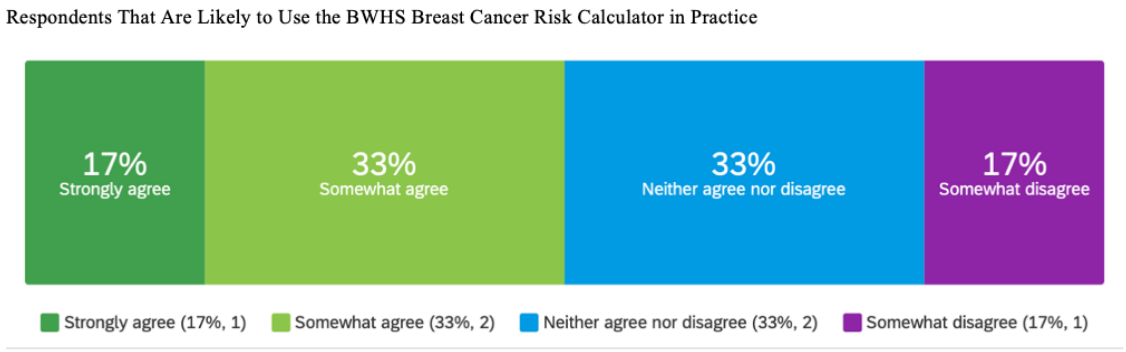

Respondents That Are Likely to Use the BWHS Breast Cancer Risk Calculator in Practice

Figure 11. Respondents that are likely to use the BWHS Breast Cancer Risk Calculator in practice

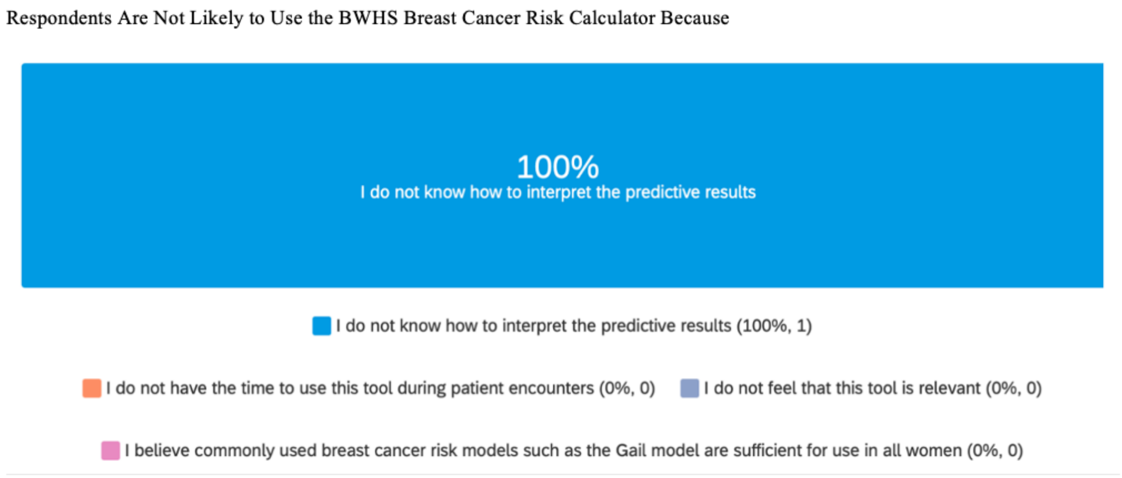

Respondents Are Not Likely to Use the BWHS Breast Cancer Risk Calculator Because

Figure 12. Respondents are not likely to use the BWHS Breast Cancer Risk Calculator because

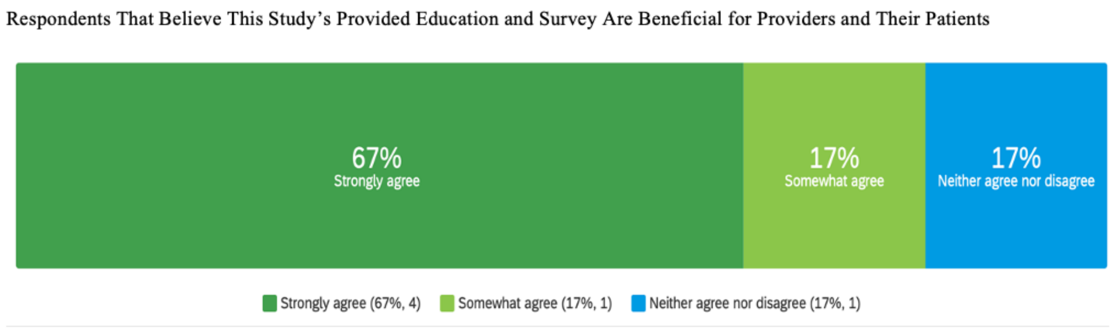


Figure 13. Respondents who believe this study's provided education and survey are beneficial for providers and their patients

Summary

Qualtrics was employed to collect electronic consent from each respondent before their eligibility to participate in the survey. Preservation of direct adherence to the study design endorsed by the chair and committee of the facility's nursing research council and by the Institutional Review Board at The University of Southern Mississippi occurred. The accomplishment of the objectives and timeline for the doctoral project was as detailed in Chapter II.

The protection of anonymity for each participant occurred throughout the project. Collection and analysis of data included qualitative and quantitative data. The next chapter proposes data interpretation and project analysis.

CHAPTER IV – DISCUSSION

Strengths and Limitations of The Project

The DNP project successfully promoted provider awareness of and familiarity with the BWHS BCRC as a viable tool for QI in rural primary care settings. The project design's strengths lie in the single-survey format that integrates the research process's pre-test, education, and post-test elements, reducing the likelihood that investigators would lose respondents' engagement in the interim. Since the intervention only took 10 minutes to complete, it gave busy rural health practitioners more flexibility to participate and complete the study. Certain caveats to the pilot study limited its applicability, such as its small sample size, reliance on responses from solely NPs rather than from all providers, and its narrow time frame.

Key Findings

All providers were NPs, most of whom were female and self-identified their race as White. Most respondents were either 25-34 or 55-64 years of age and had 1-3 years of clinical experience as a provider. Following the educational intervention, there was not a statistically significant increase in clinical knowledge regarding BC risk assessment in Black women and the BWHS BCRC (p=0.11), most likely due to the small sample size.

One hundred percent of the NPS indicated that the BWHS BCRC would be useful in the U.S. Black female population. Most also agreed that race-based BC risk assessment significantly impacts treatment recommendations, that the BWHS BCRC would be useful for the populations served in rural primary care clinics in Mississippi and believed that this study’s provided education and survey is beneficial for providers and their patients.

Other data showed that 50% of respondents neither agreed nor disagreed and the other 50% either agreed or disagreed. In these scenarios, 50% of respondents disagreed that questionnaires that assess BC risk have too many demands on their time, and 50% agreed that they were interested in learning more about the BWHS BCRC. Fifty percent agreed, 33% neither agreed nor disagreed, and 17% somewhat disagreed that they were likely to use the BWHS BCRC in practice.

Implications for Future Practice

With a p-value of 0.11, there is insufficient data to draw firm conclusions that educating rural Mississippi providers on the BWHS BCRC increased their understanding of the application's use in primary care and successfully changed the provider's perceived risk of BC in younger Black women over two weeks. Notably, a high p-value does not always indicate that no effect exists. If the p-value is large, there is not enough evidence to conclude that the population-level impact occurred. The sample size may be too small to support the premise that no influence exists.

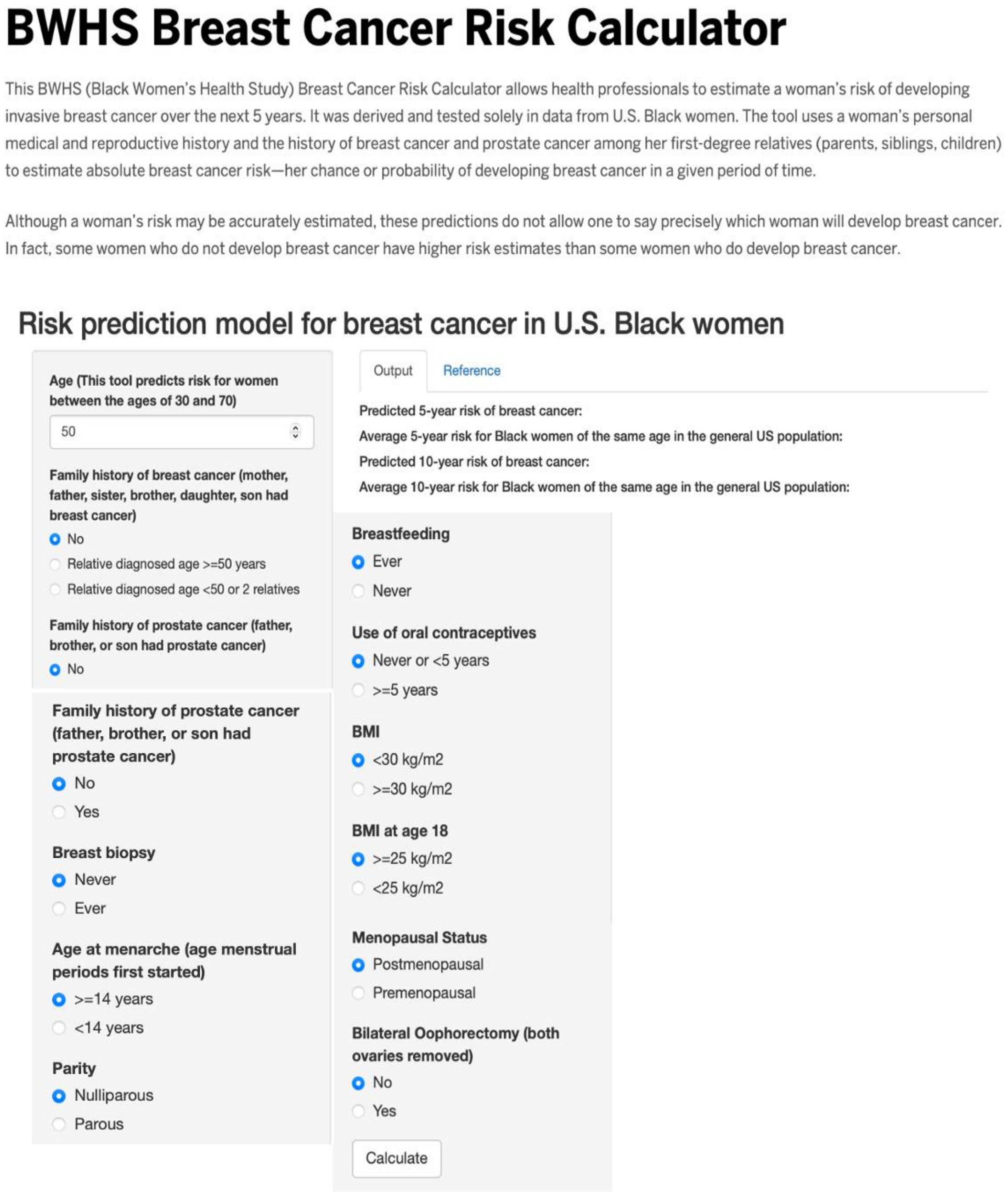
Though there was not a statistically significant increase in the pre-assessment and post-assessment data, this DNP project did address whether educating rural Mississippi providers on the BWHS BCRC would increase their understanding of the application's use in primary care and successfully change the provider's perceived risk of BC in younger Black women over two weeks based on quantitative data. The qualitative data involving Likert-scale questions, however, indicates that most NPs in the sample population agree that race-based BC risk assessment significantly impacts treatment recommendations, that the BWHS BCRC would be useful for the populations served in rural primary care clinics in Mississippi and believed that this study's provided education and survey is beneficial for providers and their patients. One hundred percent of the NPS believed that the BWHS BCRC would be useful in the U.S. Black female population. Most also agreed that race-based BC risk assessment significantly impacts treatment recommendations, that the BWHS BCRC would be useful for the populations served in rural primary care clinics in Mississippi and believed that this study's provided education and survey is beneficial for providers and their patients. This data is informative and highlights the necessity of conducting additional investigations with a different methodology.

Conclusion

Medical professionals who participate in CE can better provide their patients with the most up-to-date treatment available. By highlighting the BWHS BCRC and the persistent health disparity that prompted its creation, this DNP QI study disseminated information to rural practitioners in South Mississippi. This DNP project investigated if rural Mississippi providers educated on the BWHS BCRC enhanced their understanding of the tool's primary care applications and affected their views of BC risk in younger Black women over two weeks.

Although no statistically significant differences were found between pre- and post-educational assessments of clinical knowledge, all NP respondents believed the BWHS BCRC would benefit the Black female community in the U.S. The majority of participants also agreed that racial differences in BC risk assessment have a substantial effect on treatment recommendations, that the BWHS BCRC would be useful for the populations served in rural primary care clinics in Mississippi, and that the education and survey provided by this study are helpful for providers and their patients. This information is relevant and indicates that more studies using a different approach are needed.

APPENDIX A – Black Women's Health Study Breast Cancer Risk Assessment Calculator



BWHS Breast Cancer Risk Calculator

This BWHS (Black Women's Health Study) Breast Cancer Risk Calculator allows health professionals to estimate a woman's risk of developing invasive breast cancer over the next 5 years. It was derived and tested solely in data from U.S. Black women. The tool uses a woman's personal medical and reproductive history and the history of breast cancer and prostate cancer among her first-degree relatives (parents, siblings, children) to estimate absolute breast cancer risk—her chance or probability of developing breast cancer in a given period of time.

Although a woman's risk may be accurately estimated, these predictions do not allow one to say precisely which woman will develop breast cancer. In fact, some women who do not develop breast cancer have higher risk estimates than some women who do develop breast cancer.

Risk prediction model for breast cancer in U.S. Black women

Age (This tool predicts risk for women between the ages of 30 and 70)
50

Family history of breast cancer (mother, father, sister, brother, daughter, son had breast cancer)
● No
○ Relative diagnosed age >=50 years
○ Relative diagnosed age <50 or 2 relatives

Family history of prostate cancer (father, brother, or son had prostate cancer)
● No

Family history of prostate cancer (father, brother, or son had prostate cancer)
● No
○ Yes

Breast biopsy
● Never
○ Ever

Age at menarche (age menstrual periods first started)
● >=14 years
○ <14 years

Parity
● Nulliparous
○ Parous

Predicted 5-year risk of breast cancer:
Average 5-year risk for Black women of the same age in the general US population:
Predicted 10-year risk of breast cancer:
Average 10-year risk for Black women of the same age in the general US population:

Breastfeeding
● Ever
○ Never

Use of oral contraceptives
● Never or <5 years
○ >=5 years

BMI
● <30 kg/m2
○ >=30 kg/m2

BMI at age 18
● >=25 kg/m2
○ <25 kg/m2

Menopausal Status
● Postmenopausal
○ Premenopausal

Bilateral Oophorectomy (both ovaries removed)
● No
○ Yes

(Slone Epidemiology Center, n.d.)

APPENDIX B – Participant Recruitment Email

Dear Prospective Participant,

My name is Shelby Holliday, I am a graduate student at the University of Southern Mississippi. I am conducting an anonymous study called *Educating providers regarding the Black Women's Health Study breast cancer risk calculator in a rural primary care setting: A quality improvement project.* The project's primary goal is to educate health care providers about the new Black Women's Health Study breast cancer risk calculator tool to understand and evaluate developmental efforts regarding breast cancer risk assessment in Black women.

If you meet the criterion specified below, I invite you to participate in this study by clicking the link below. Participants must be at least 18 years of age and hold either a medical degree, or an advanced practice degree as a nurse practitioner. Participation will involve a 5-minute narrated educational PowerPoint, as well as pre-and post-education surveys. Participation in the survey is entirely voluntary, and no monetary or other incentives will be provided.

All information contained in this study will be anonymous, private, and used for research purposes only. This study has been approved by the Institutional Review Board (IRB) at the University of Southern Mississippi, under protocol number (IRB – #22-990). Six months following completion of all graduation requirements, all survey replies will be destroyed. Your participation should take about 10 minutes.

This project and its content will be available for a period of two weeks. During this period **(August 1 – August 15**) the participant may access the material freely at their convenience.
Please answer the questions to your comfort level.

First, click the link below or copy and paste URL into browser to be directed to the study site. By clicking on the link below, you may view the online informed consent required to participate in the survey.

Click here for link to survey

https://usmuw.co1.qualtrics.com/jfe/form/SV_1LaJ8jtlTQXx8DI

Thank you for participating,

Shelby Holliday, BSN, RN, CCRN, DNP-FNP Student
School of Leadership and Advanced Nursing Practice
University of Southern Mississippi

APPENDIX C – DNP Qualtrics Survey

Educating Providers regarding the Black Women's Health Study Breast Cancer Risk Calculator in a Rural Primary Care Setting: A Quality Improvement Program Consent Form

Dear Prospective Participant,

My name is Shelby Holliday, I am a graduate student at the University of Southern Mississippi. I am conducting an anonymous study called *Educating providers regarding the Black Women's Health Study breast cancer risk calculator in a rural primary care setting: A quality improvement project*. The project's primary goal is to educate health care providers about the Black Women's Health Study breast cancer risk calculator tool to understand and evaluate developmental efforts regarding breast cancer risk assessment in Black women.

Procedures and Expected Duration of Participation

If you meet the criterion specified below, I invite you to participate in this study following electronically signed informed consent. Participants must be at least 18 years of age and hold either a medical degree or an advanced practice degree as a nurse practitioner, practicing in rural areas of South Mississippi. Participation will involve a 5-minute narrated educational *PowerPoint*, as well as pre- and post-education surveys. Participation in the survey is entirely optional, and no monetary or other incentives will be provided. Your participation should take about 10 minutes. This project and its content will be available for a period of two weeks. During this period (August 1 – August 15,

2022) the participant may access the material freely at their convenience.

Foreseeable Risks, Discomforts, And Benefits of Participation

You will receive no direct benefits from participating in this research study. However, your responses may help increase efforts to identify Black women who might benefit from early breast cancer risk screening, increasing early detection and reducing mortality. There are no foreseeable risks or discomforts involved in participating in this study.

Confidentiality Procedures

All information contained in this study will be anonymous, private, and used for research purposes only. This study has been approved by the Institutional Review Board (IRB) at the University of Southern Mississippi, under protocol number (IRB – #22-990). Survey responses will be contained in Qualtrics using a password-protected electronic format. There will be no collection of personal information such as name, email address, or Internet Protocol address identifiers. Protection of confidentiality will occur. Six months following the completion of all graduation requirements, all survey replies will be destroyed.

Compensation Or Other Incentives for Participation

Participation in the survey is entirely optional, and no monetary or other incentives will be provided.

Participation Statement

Participation in the survey is entirely voluntary. Participants are free to decline to participate, skip questions, or withdraw from the survey at any point without penalty, prejudice, or loss of benefits.

IRB Chair Contact Information

If you have further questions or concerns about your rights as a participant in this study, contact the University of Southern Mississippi IRB Chair at (601) 266-5997.

Investigator Contact Information

If you have questions concerning the study, please contact the principal investigator Shelby Holliday at [redacted] or by email at Shelby.Holliday@usm.edu.

Electronic Consent:

Please select your choice below. You may print a copy of this consent form for your records.

Clicking on the **"Agree"** button indicates that:

· You have read the above information.

· You voluntarily agree to participate.

· You are 18 years of age or older.

· You hold a medical degree or advanced practice degree as a nurse practitioner.

· You practice in rural areas of South Mississippi.

Clicking on the **"Disagree"** button indicates that you do not give your consent, and the study will end.

○ Agree

○ Disagree

APPENDIX D – Pre-Education Survey

Demographics

Q1 What is your self-identified gender?

○ Male

○ Female

○ Non-binary / Third gender

Q2 What is your current age?

○ 18-24 Years

○ 25-34 Years

○ 35-44 Years

○ 45-54 Years

○ 55-64 Years

○ >65 Years

Q3 What is your self-identified race?

○ White

○ Black or African American

○ American Indian or Alaska Native

○ Asian

○ Native Hawaiian or Pacific Islander

○ Other

Q4 What is your current clinical position as a provider?

○ Medical Doctor

○ Nurse Practitioner

Q5 How many years of experience do you have in this role?
○ 1-3 Years

○ 3-5 Years

○ >5 Years

○ >10 Years

○ >20 Years

Assessment of Clinical Knowledge

Q6 Current breast cancer risk assessment tools have not performed well, resulting in an underestimation of breast cancer risk in Black women.
○ True

○ False

Q7 Compared with White women, Black women in the United States are younger at diagnosis, on average, and are more likely to be diagnosed with aggressive or advanced forms of breast cancer.
○ True

○ False

Q8 The BWHS calculator gathers data using a woman's;
○ Medical History

○ Family History

○ Reproductive History

○ All of The Above

Q9 The data required may be gathered;
○ From an Online Questionnaire

○ From the Woman themself

○ From the Provider

○ From the Medical Record

○ All of The Above

Q10 In Mississippi, Black women are more than ___ likely than White women to die from breast cancer.

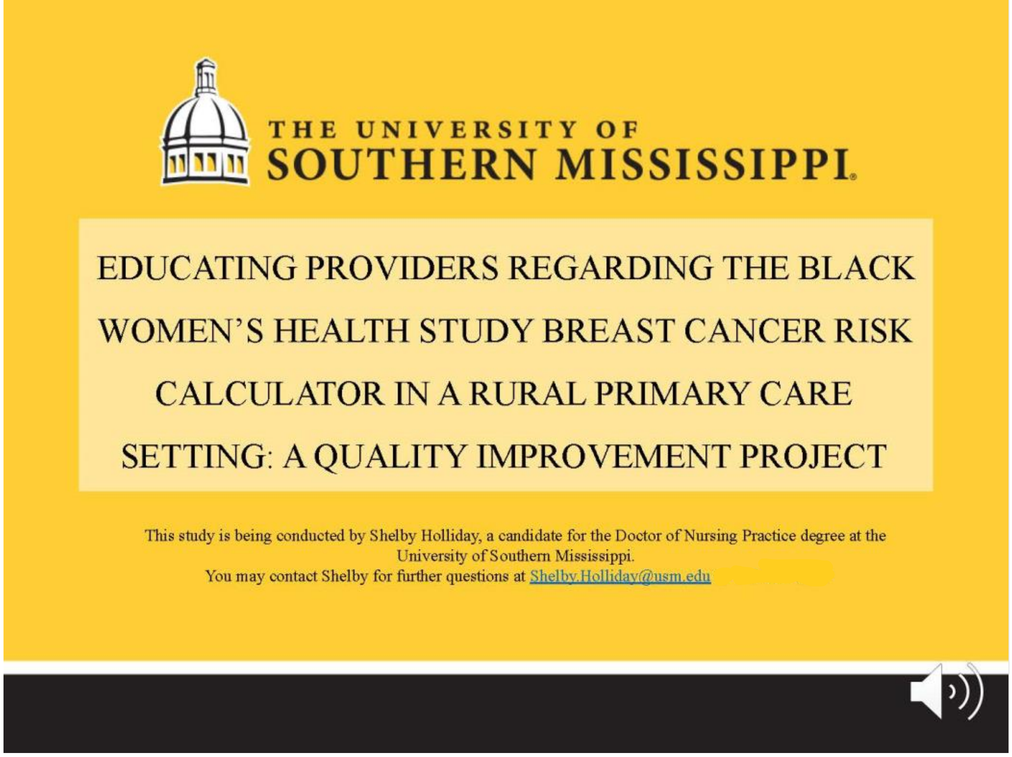
○ 10%

○ 25%

○ 30%

○ 60%

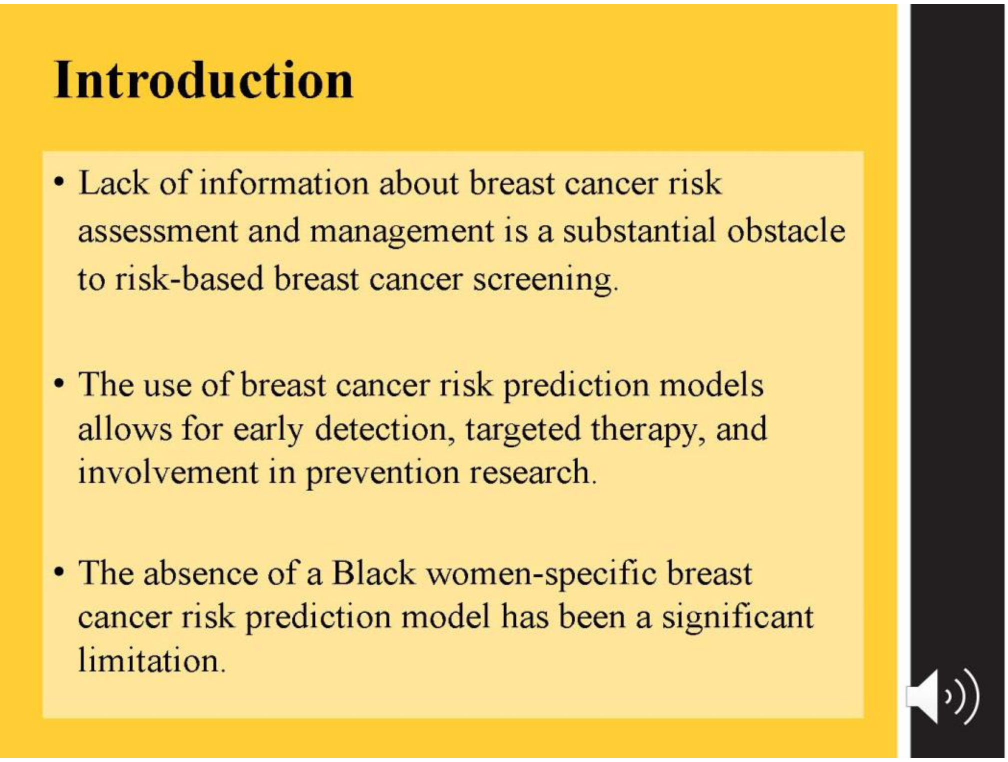
APPENDIX E – Provider Education



THE UNIVERSITY OF SOUTHERN MISSISSIPPI

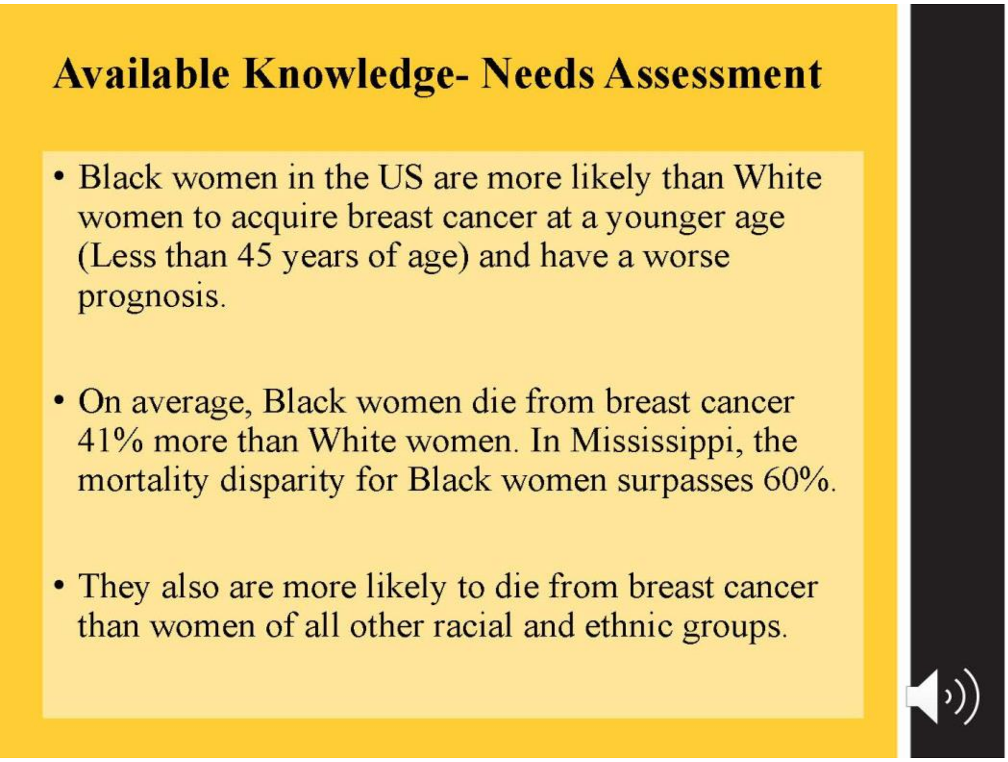
EDUCATING PROVIDERS REGARDING THE BLACK WOMEN’S HEALTH STUDY BREAST CANCER RISK CALCULATOR IN A RURAL PRIMARY CARE SETTING: A QUALITY IMPROVEMENT PROJECT

This study is being conducted by Shelby Holliday, a candidate for the Doctor of Nursing Practice degree at the University of Southern Mississippi.
You may contact Shelby for further questions at Shelby.Holliday@usm.edu



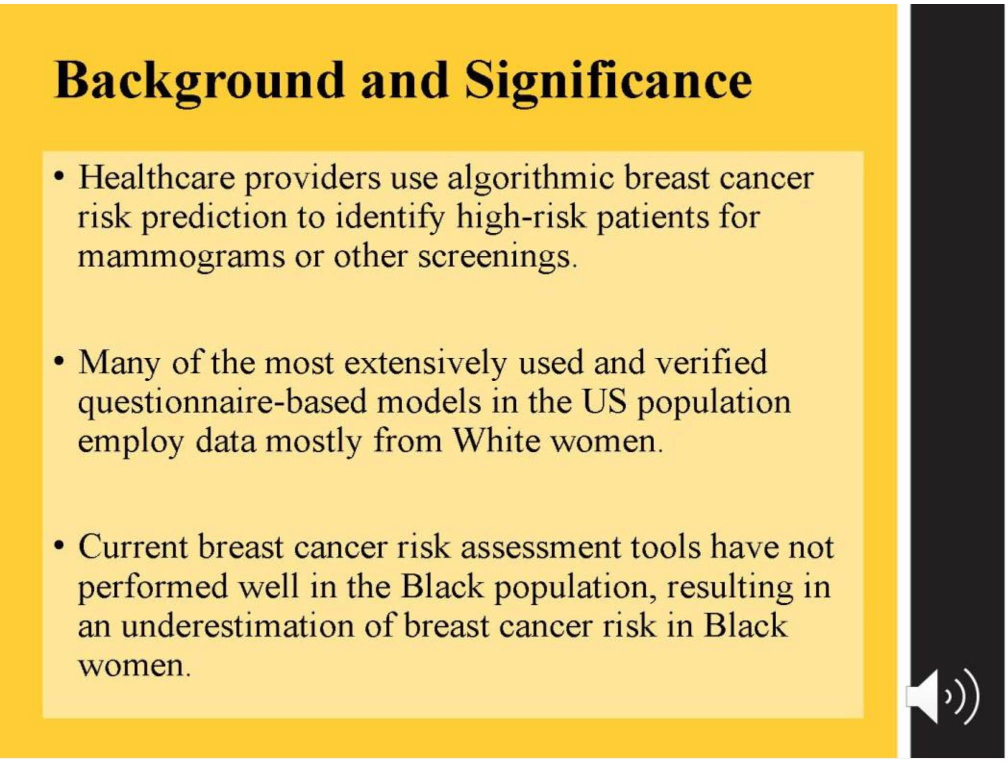
Introduction

- Lack of information about breast cancer risk assessment and management is a substantial obstacle to risk-based breast cancer screening.
- The use of breast cancer risk prediction models allows for early detection, targeted therapy, and involvement in prevention research.
- The absence of a Black women-specific breast cancer risk prediction model has been a significant limitation.



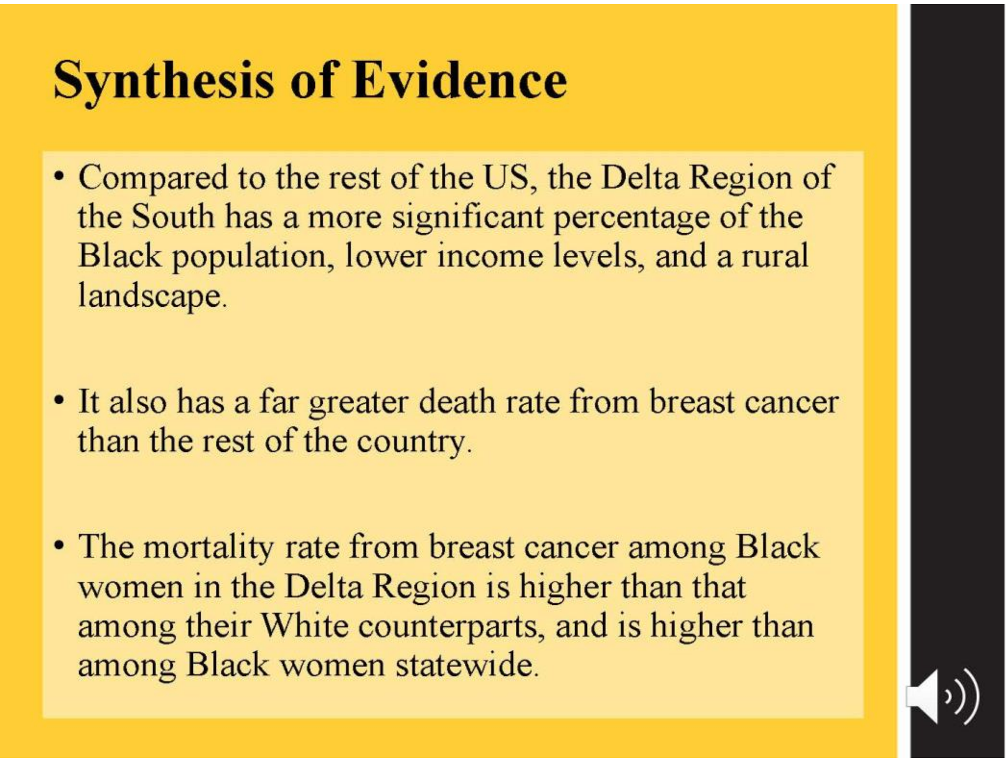
Available Knowledge- Needs Assessment

- Black women in the US are more likely than White women to acquire breast cancer at a younger age (Less than 45 years of age) and have a worse prognosis.
- On average, Black women die from breast cancer 41% more than White women. In Mississippi, the mortality disparity for Black women surpasses 60%.
- They also are more likely to die from breast cancer than women of all other racial and ethnic groups.



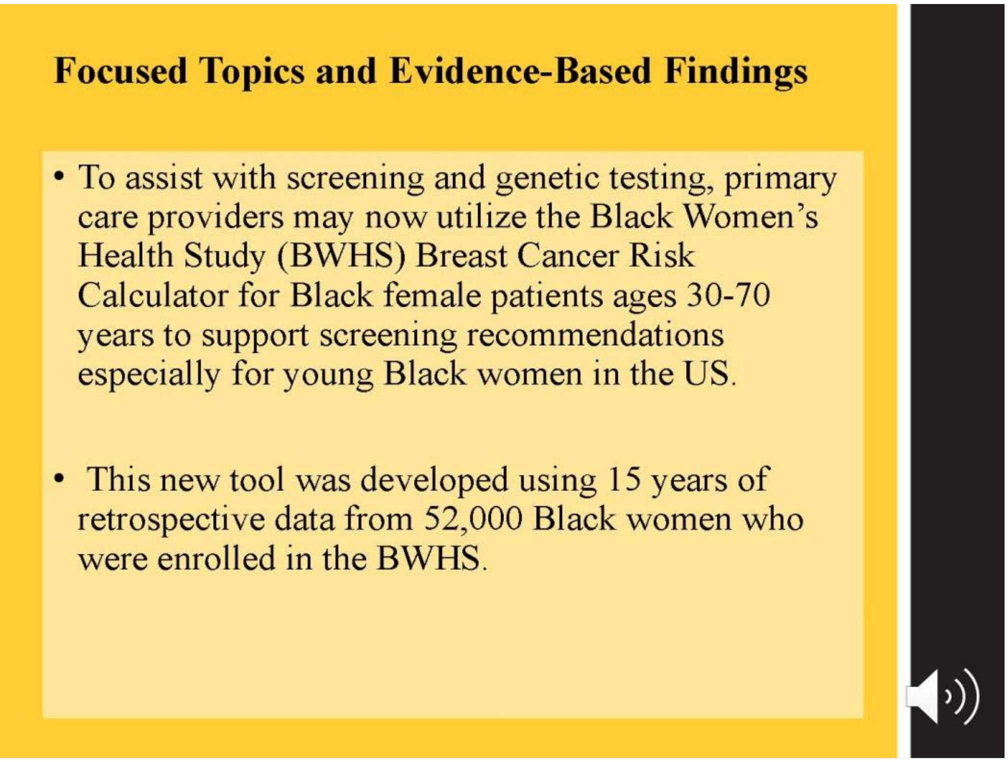
Background and Significance

- Healthcare providers use algorithmic breast cancer risk prediction to identify high-risk patients for mammograms or other screenings.
- Many of the most extensively used and verified questionnaire-based models in the US population employ data mostly from White women.
- Current breast cancer risk assessment tools have not performed well in the Black population, resulting in an underestimation of breast cancer risk in Black women.



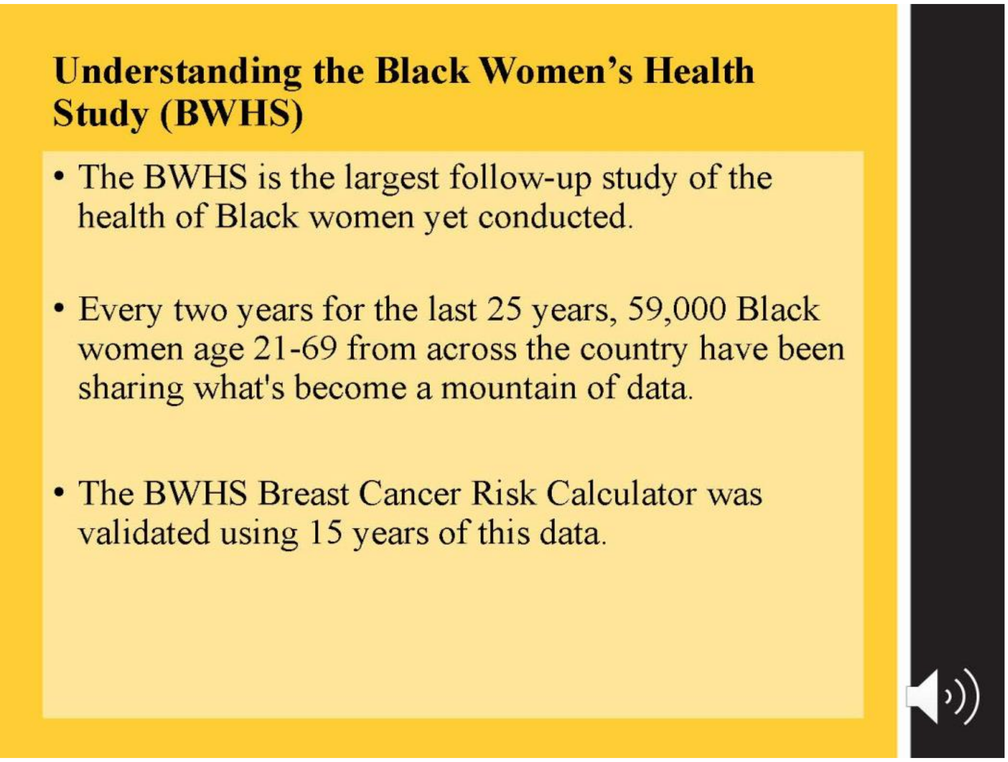
Synthesis of Evidence

- Compared to the rest of the US, the Delta Region of the South has a more significant percentage of the Black population, lower income levels, and a rural landscape.
- It also has a far greater death rate from breast cancer than the rest of the country.
- The mortality rate from breast cancer among Black women in the Delta Region is higher than that among their White counterparts, and is higher than among Black women statewide.



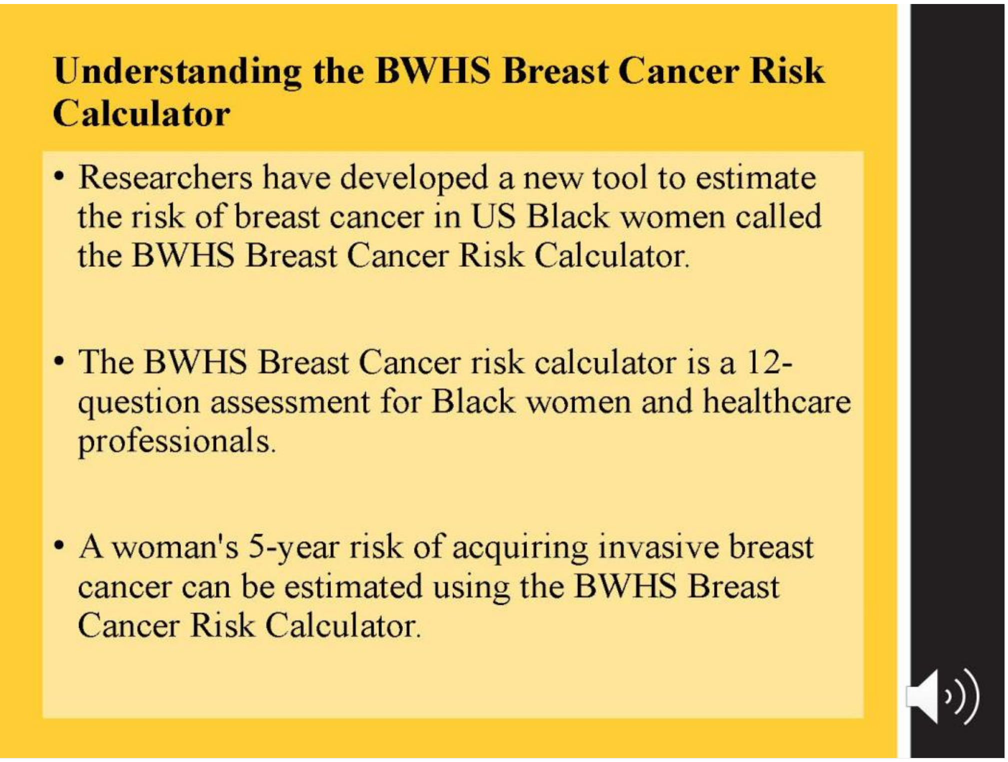
Focused Topics and Evidence-Based Findings

- To assist with screening and genetic testing, primary care providers may now utilize the Black Women's Health Study (BWHS) Breast Cancer Risk Calculator for Black female patients ages 30-70 years to support screening recommendations especially for young Black women in the US.
- This new tool was developed using 15 years of retrospective data from 52,000 Black women who were enrolled in the BWHS.



Understanding the Black Women's Health Study (BWHS)

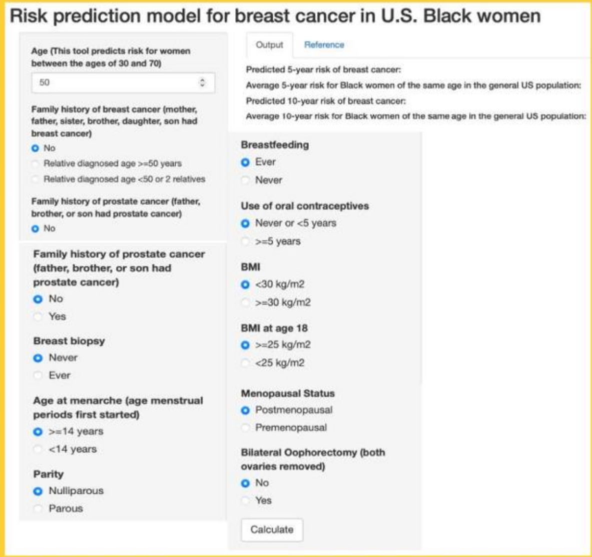
- The BWHS is the largest follow-up study of the health of Black women yet conducted.
- Every two years for the last 25 years, 59,000 Black women age 21-69 from across the country have been sharing what's become a mountain of data.
- The BWHS Breast Cancer Risk Calculator was validated using 15 years of this data.



Understanding the BWHS Breast Cancer Risk Calculator

- Researchers have developed a new tool to estimate the risk of breast cancer in US Black women called the BWHS Breast Cancer Risk Calculator.
- The BWHS Breast Cancer risk calculator is a 12-question assessment for Black women and healthcare professionals.
- A woman's 5-year risk of acquiring invasive breast cancer can be estimated using the BWHS Breast Cancer Risk Calculator.

BWHS Breast Cancer Risk Calculator



Risk prediction model for breast cancer in U.S. Black women

Age (This tool predicts risk for women between the ages of 30 and 70)
50

Family history of breast cancer (mother, father, sister, brother, daughter, son had breast cancer)
● No
○ Relative diagnosed age >=50 years
○ Relative diagnosed age <50 or 2 relatives

Family history of prostate cancer (father, brother, or son had prostate cancer)
● No

Family history of prostate cancer (father, brother, or son had prostate cancer)
● No
○ Yes

Breast biopsy
● Never
○ Ever

Age at menarche (age menstrual periods first started)
● >=14 years
○ <14 years

Parity
● Nulliparous
○ Parous

Predicted 5-year risk of breast cancer:
Average 5-year risk for Black women of the same age in the general US population:
Predicted 10-year risk of breast cancer:
Average 10-year risk for Black women of the same age in the general US population:

Breastfeeding
● Ever
○ Never

Use of oral contraceptives
● Never or <5 years
○ >=5 years

BMI
● <30 kg/m2
○ >=30 kg/m2

BMI at age 18
● >=25 kg/m2
○ <25 kg/m2

Menopausal Status
● Postmenopausal
○ Premenopausal

Bilateral Oophorectomy (both ovaries removed)
● No
○ Yes

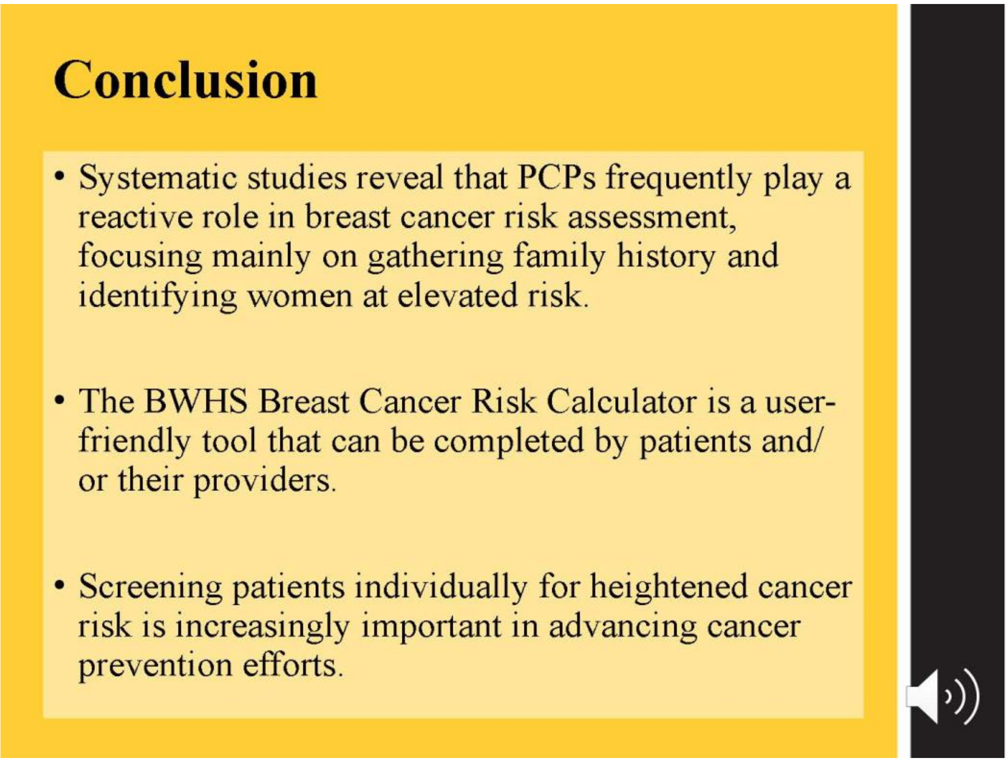
Understanding the BWHS Breast Cancer Risk Calculator

- **The BWHS calculator gathers data using a woman's;**

✓ Medical History
✓ Family History
✓ Reproductive History

- **The data may be gathered;**

✓ From an online questionnaire
✓ From the woman herself
✓ From the provider
✓ From the medical record



Conclusion

- Systematic studies reveal that PCPs frequently play a reactive role in breast cancer risk assessment, focusing mainly on gathering family history and identifying women at elevated risk.
- The BWHS Breast Cancer Risk Calculator is a user-friendly tool that can be completed by patients and/or their providers.
- Screening patients individually for heightened cancer risk is increasingly important in advancing cancer prevention efforts.

APPENDIX F – Post-Education Survey

Re-Assessment of Clinical Knowledge

Q1 *Please answer the following statement:*

"I have an understanding of the Black Women's Health Study (BWHS)."

○ No

○ Yes

Q2 *Please respond to the following statement:*

"I have an understanding of the BWHS Breast Cancer Risk Calculator."

○ No

○ Yes

Q3 Current breast cancer risk assessment tools have not performed well, resulting in an underestimation of breast cancer risk in Black women.

○ True

○ False

Q4 Compared with White women, Black women in the United States are younger at diagnosis, on average, and are more likely to be diagnosed with aggressive or advanced forms of breast cancer.

○ True

○ False

Q5 The BWHS calculator gathers data using a woman's;

○ Medical History

○ Family History

○ Reproductive History

○ All of The Above

Q6 The data required may be gathered;

- From an Online Questionnaire
- From the Woman themself
- From the Provider
- From the Medical Record
- All of The Above

Q7 In Mississippi, Black women are more than ___ likely than White women to die from breast cancer.

- 10%
- 25%
- 30%
- 60%

Cultural Sensitivity and Relevance

Q1 *Please respond to the following statement:*

“Questionnaires that assess breast cancer risk have too many demands on my time.”

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Q2 *Please respond to the following statement:*

“Decisions on when to start breast cancer screening should be made on a more individual basis rather than based only on someone’s age.”

- Strongly agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Strongly disagree

Q3 *Please respond to the following statement:*

“Race-based breast cancer risk assessment has a significant impact on treatment recommendations.”

○ Strongly agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Strongly disagree

Q4 *Please respond to the following statement:*

“The BWHS Breast Cancer Risk Calculator would be useful for the populations served in rural primary care clinics in Mississippi.”

○ Strongly agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Strongly disagree

Q5 *Please respond to the following statement:*

“The BWHS Breast Cancer Risk Calculator would be useful in the United States Black female population.”

○ Strongly agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Strongly disagree

Q6 *Please respond to the following statement:*

“I am interested in learning more about the BWHS Breast Cancer Risk Calculator"

○ Strongly agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat agree

○ Strongly disagree

Q7 *Please respond to the following statement:*

“I am likely to use the BWHS Breast Cancer Risk Calculator in practice"

○ Strongly agree

○ Somewhat agree

○ Neither agree nor disagree

○ Somewhat disagree

○ Strongly disagree

Q8 Please respond to the following statement (Multiple answers allowed):

“I am not likely to use the BWHS Breast Cancer Risk Calculator because.”

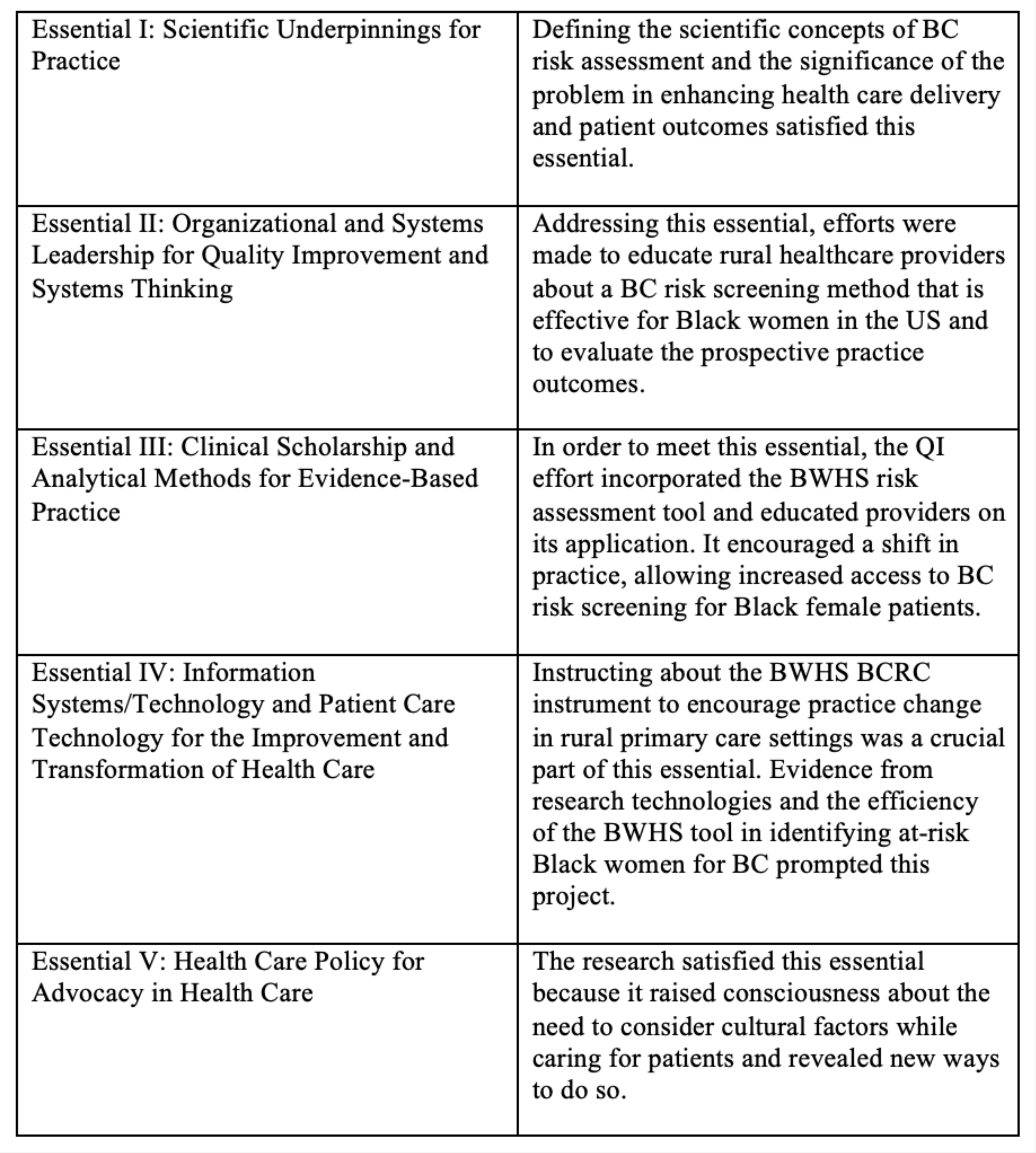
- I do not know how to interpret the predictive results
- I do not have the time to use this tool during patient encounters
- I do not feel that this tool is relevant
- I believe commonly used breast cancer risk models such as the Gail model are sufficient for use in all women
- None of the above

Q9 Please respond to the following statement:

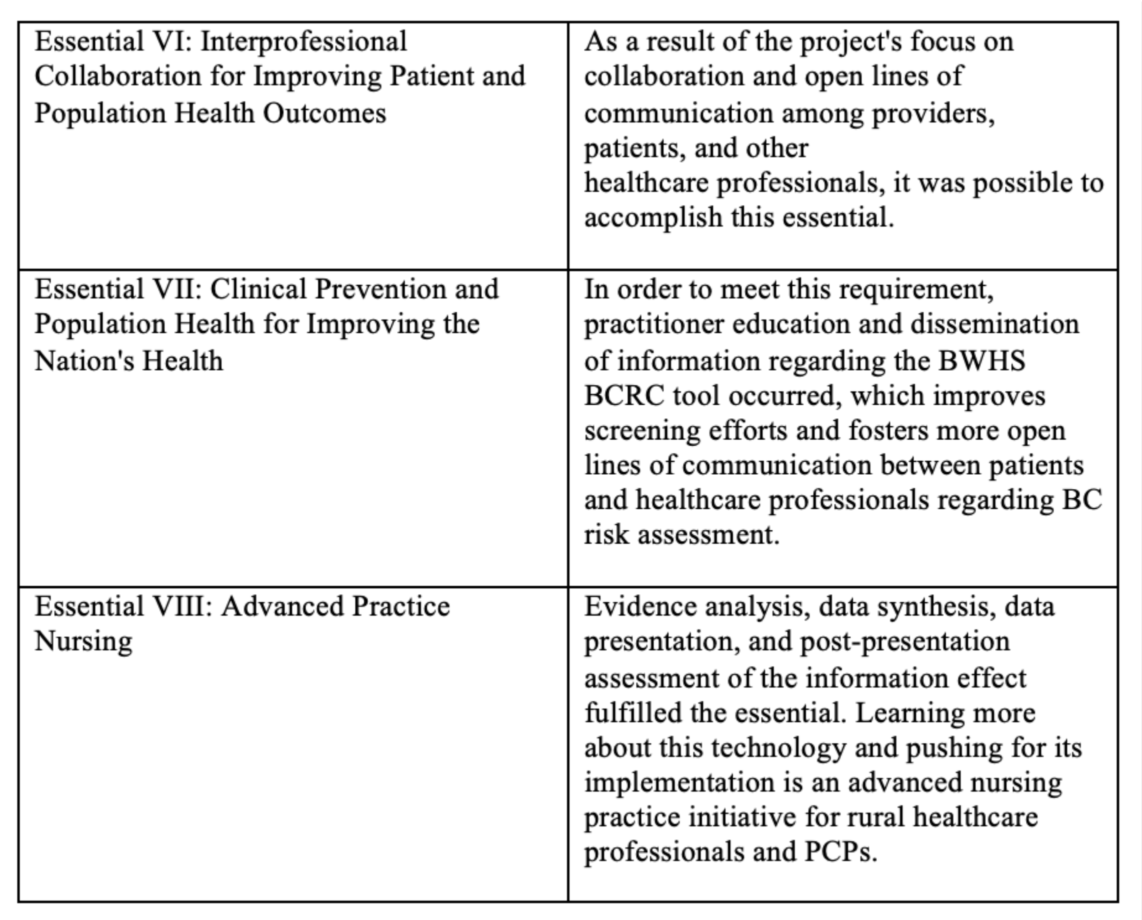
“I believe this study's provided education and survey are beneficial for providers and their patients.”

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly agree

APPENDIX G – Doctor of Nursing Practice Essentials



Essential I: Scientific Underpinnings for Practice	Defining the scientific concepts of BC risk assessment and the significance of the problem in enhancing health care delivery and patient outcomes satisfied this essential.
Essential II: Organizational and Systems Leadership for Quality Improvement and Systems Thinking	Addressing this essential, efforts were made to educate rural healthcare providers about a BC risk screening method that is effective for Black women in the US and to evaluate the prospective practice outcomes.
Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice	In order to meet this essential, the QI effort incorporated the BWHS risk assessment tool and educated providers on its application. It encouraged a shift in practice, allowing increased access to BC risk screening for Black female patients.
Essential IV: Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care	Instructing about the BWHS BCRC instrument to encourage practice change in rural primary care settings was a crucial part of this essential. Evidence from research technologies and the efficiency of the BWHS tool in identifying at-risk Black women for BC prompted this project.
Essential V: Health Care Policy for Advocacy in Health Care	The research satisfied this essential because it raised consciousness about the need to consider cultural factors while caring for patients and revealed new ways to do so.



Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes	As a result of the project's focus on collaboration and open lines of communication among providers, patients, and other healthcare professionals, it was possible to accomplish this essential.
Essential VII: Clinical Prevention and Population Health for Improving the Nation's Health	In order to meet this requirement, practitioner education and dissemination of information regarding the BWHS BCRC tool occurred, which improves screening efforts and fosters more open lines of communication between patients and healthcare professionals regarding BC risk assessment.
Essential VIII: Advanced Practice Nursing	Evidence analysis, data synthesis, data presentation, and post-presentation assessment of the information effect fulfilled the essential. Learning more about this technology and pushing for its implementation is an advanced nursing practice initiative for rural healthcare professionals and PCPs.

(AACN, 2022).

APPENDIX H –Synthesis of Evidence

ACS 2022 Cancer Facts and Figures for African American/Black People

Reference	Design	Sample	Findings	Recommendations
American Cancer Society. (2022b, February 14). 2022 cancer facts & figures cancer for African American/black people. cancer.org. Retrieved March 29, 2022, from https://www.cancer.org/latest-news/facts-and-figures-african-american-black-people-2022-2024.htrnl	N/A	N/A	Black women are 41% more likely than White women to die from BC despite equal or lower incidence rates. The large discrepancy in BC death rates between Black and White women likely reflects fewer malignancies discovered early (57% vs. 67%) and less access to high-quality treatment. For every stage of diagnosis, the 5-year survival rate for Black women is much lower than that of their White counterparts.	Screening, public awareness, and improved treatments have contributed to BC declines. Early detection and effective treatment are the best ways to reduce BC-related fatalities. The delivery of coordinated, ongoing, culturally, and socioeconomically sensitive BC care is crucial to ensure equal receipt of guideline-indicated therapies and to improve outcomes across racial groups.

			About 82% of Black women diagnosed with BC survive for at least five years, compared to 92% of White women diagnosed, and are twice as likely as White women to get triple-negative BC. A lack of surgery and treatment increases their risk of death from these tumors by 30%. As of 2019, BC is the leading cause of cancer death among Black women. According to estimations provided by the ACS, there will be a total of 287,850 women in the US diagnosed with invasive BC in the year 2022.	Increasing access to treatment for low-income people and building trust in the medical community can significantly lower cancer incidence in Black individuals.

			Compared to women of other races and ethnicities, Black women have a greater mortality rate due to BC. Before age 40, more Black women than White women are diagnosed with BC. Regarding BC mortality, racial differences are most notable in Louisiana and Mississippi. According to the ACS, the death rate for Black women in both states is more than 60%.	

(ACS, 2022b).

Disparities in Breast Cancer Treatment and Outcomes: Biological, Social, and Health System Determinants for Research

Reference	Design	Sample	Findings	Recommendations
Wheeler, S. B., Reeder-Hayes, K. E., & Carey, L. A. (2013). Disparities in breast cancer treatment and outcomes: Biological, social, and health system determinants and opportunities for research. The Oncologist, 18(9), 986-993. Retrieved March 29, 2022, from https://doi.org/10.1634/theoncologist.2013-0243	The literature review on racial inequalities in BC mortality focuses on the disparities in treatment and potential areas for further investigation. An examination of socioeconomic disparities was conducted, as well as an assessment of their involvement in causing a lack of high-quality and timely cancer diagnosis, treatment, detection, and screening.	N/A	Despite the increased availability of mammography across diverse races, racial inequalities in BC mortality rates continuously demonstrated increased experience of challenges among minorities like the Black population for several decades. Black individuals are more susceptible to severe sicknesses such as BC than White individuals based on other health-related and unrelated concepts and practices.	Future studies should examine systemic racism's impact on health and create countermeasures. Recommendations could include increasing diversity in clinical trials, provider education, and health system financial incentives for equitable cancer care. One of the most important goals should be to ensure that all health care providers and patients have access to the same high-quality resources. Policymakers may benefit from considering the possibility that

			Evidence suggests that women of different races and ethnicities receive equal treatment and have equivalent outcomes	variations in the quality of cancer treatment received by various patient populations are related to sociodemographic and health system characteristics.

(Wheeler et al., 2013).

Leveraging Cancer Registry Data to Study Breast Cancer Disparities

in the Lower Mississippi Delta Region

Reference	Design	Sample	Findings	Recommendations
Zahnd, W. (2018). Leveraging cancer registry data to study breast cancer disparities in the lower Mississippi delta region (September 13, 2018) [NAACCReview]. NAACCR. https://www.naaccr.org/leveraging-cancer-registry-data- to-study-breast- cancer-disparities- in-the-lower-Mississippi-delta- region/	BC incidence in the Delta region was analyzed using Warnecke's Model for Analysis of Population Health and Health Disparities.	Individual-level data on instances of BC diagnosed in the Lower LMDR States between 2012 and 2014 were drawn from the CiNA Deluxe File. This report draws its information from a submission made to NAACCR in December 2016.	Rural regions make up more than 40% of the Delta region, with over 90% of those locations lacking medical professionals and facilities. Deprived of access to screening programs, poor and rural women have increased odds of late-stage cancer. The mortality rate from BC among Black women in the Delta region is higher than that among White women in the Delta region and higher than among Black women statewide	Further research should examine whether unmeasured individual and environmental factors contribute to the inequities women in the Delta region suffer.

			Compared to the rest of the U.S., the Delta region of the South has a more significant percentage of the Black population, lower income levels, and a rural landscape. It also has a far greater death rate in BC than in the rest of the country. One in five Delta inhabitants lives below the poverty level, and approximately one-third of the population is Black. The mortality rate from BC among Black women in the Delta Region is higher than that among White women in the Delta Region and higher than among Black women statewide.	

			Delta Region Black women exhibited lower rates of early BC but higher rates of late-stage tumors, even after accounting for age and other contextual variables. Aggressive BC subtypes, an advanced stage upon diagnosis, and limited access to mammography screening may contribute to increased death rates. Triple-negative breast cancer was more common among Delta women than non-Delta residents. Those living in the Delta were more likely to be diagnosed with triple-negative breast cancer than women elsewhere.	

			This trait was shared by Black women, in contrast to White women. Across all demographic categories, Delta women had a higher frequency of ambiguous subtypes.	

(Zahnd, 2018).

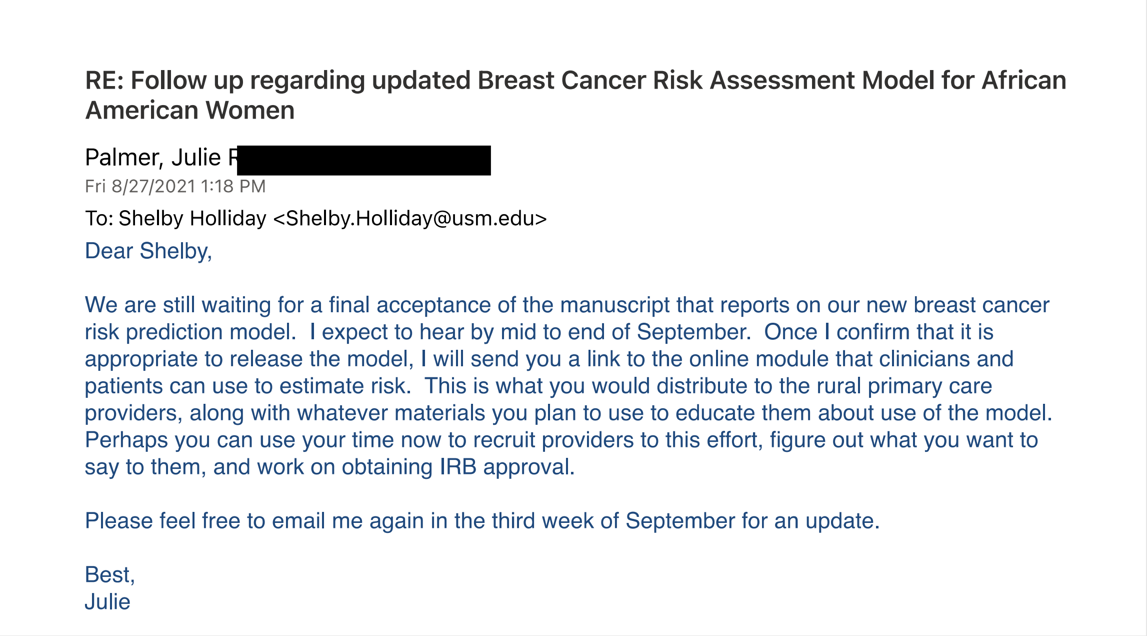
A Validated Risk Prediction Model for Breast Cancer in US Black Women

Reference	Design	Sample	Findings	Recommendations
Palmer, J. R., Zirpoli, G., Bertrand, K. A., Battaglia, T., Bernstein, L., Ambrosone, C. B., Bandera, E. V ., Troester, M. A., Rosenberg, L., Pfeiffer, R. M., & Trinquart, L. (2021). A validated risk prediction model for breast cancer in u.s. black women. Journal of Clinical Oncology, 39(34), 3866-3877. Retrieved March 14, 2022, from https://doi.org/10.12 00/JCO .21.0 I 236	The BWHS BCRC was conceived of and tested in part with data from significant case-control and cohort studies of breast cancer in Black women in the U.S. Data utilized from case-control studies calculated risk ratios.	Data collection from Black women in the U.S. led to the development of the BWHS BCRC. This data originated from U.S. Black women who participated in three extensive population-based BC studies. In each survey, almost half of the women identified as Black. Researchers used 15 years of this data from approximately 52,000 BWHS participants to	A woman's 5-year risk of acquiring invasive BC can be estimated using the BWHS BCRC. The BWHS BCRC is a 12-question assessment for Black women and health care professionals. Overall, the new model performed similarly to other commonly used models, such as the Gail Model, for predicting the likelihood of BC development in White women,	This model may be helpful for risk stratification of young Black women under the age when BC screening begins. Future research may include using their ER1 risk prediction model, which could help identify Black women eligible for chemoprevention studies.

		assess their model's performance.	suggesting that it may help predict whether or not a Black woman would develop BC. The new model's discriminatory accuracy was similar to that of questionnaire-based BC risk prediction models in White women, demonstrating effective risk stratification for Black women.	

(Palmer et al., 2021).

APPENDIX I –Author Permission to Use BWHS Breast Cancer Risk Calculator



RE: Follow up regarding updated Breast Cancer Risk Assessment Model for African American Women

Palmer, Julie [redacted]
Fri 8/27/2021 1:18 PM
To: Shelby Holliday <Shelby.Holliday@usm.edu>

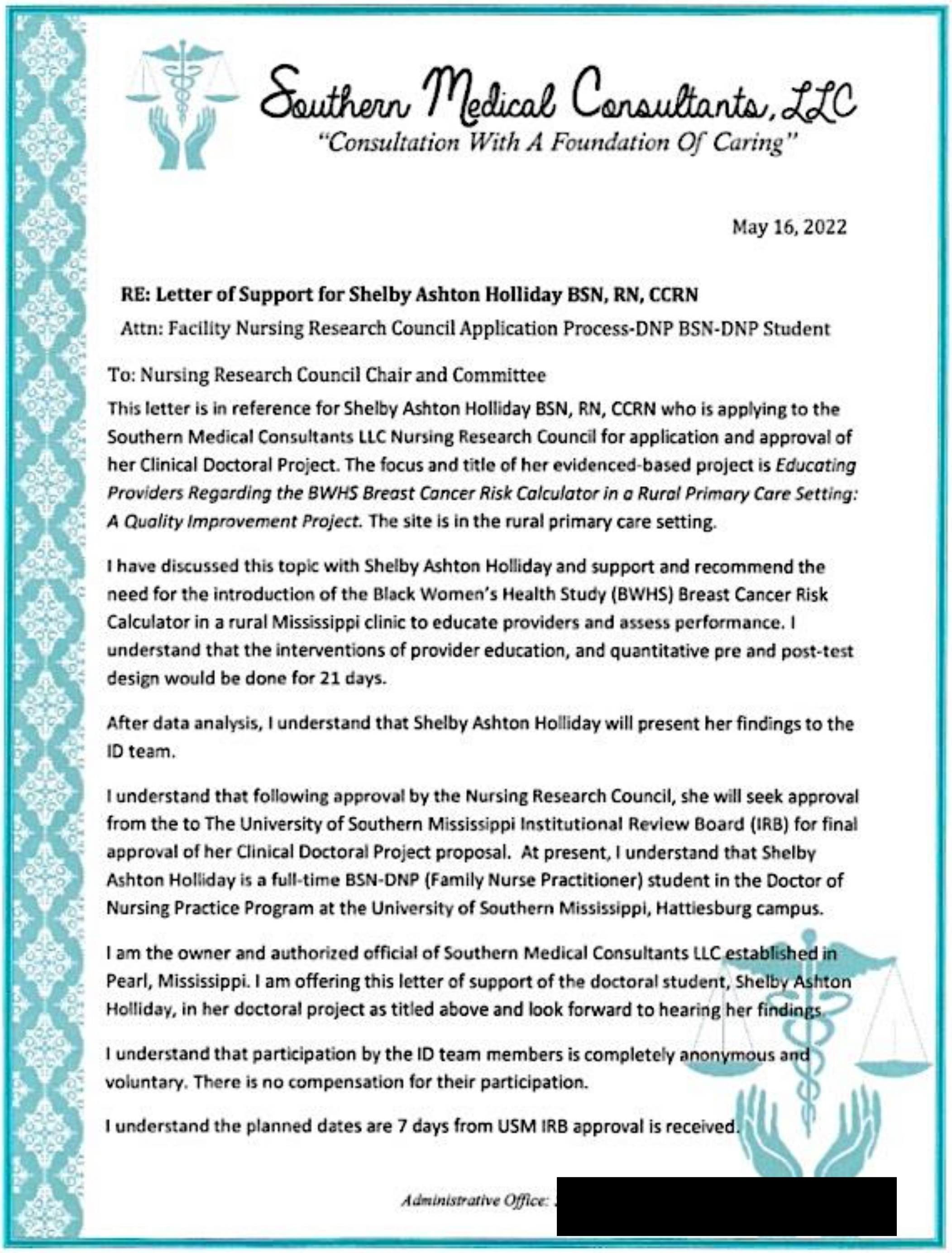
Dear Shelby,

We are still waiting for a final acceptance of the manuscript that reports on our new breast cancer risk prediction model. I expect to hear by mid to end of September. Once I confirm that it is appropriate to release the model, I will send you a link to the online module that clinicians and patients can use to estimate risk. This is what you would distribute to the rural primary care providers, along with whatever materials you plan to use to educate them about use of the model. Perhaps you can use your time now to recruit providers to this effort, figure out what you want to say to them, and work on obtaining IRB approval.

Please feel free to email me again in the third week of September for an update.

Best,
Julie

APPENDIX J – Facility Letters of Support



Southern Medical Consultants, LLC
"Consultation With A Foundation Of Caring"

May 16, 2022

RE: Letter of Support for Shelby Ashton Holliday BSN, RN, CCRN
Attn: Facility Nursing Research Council Application Process-DNP BSN-DNP Student

To: Nursing Research Council Chair and Committee

This letter is in reference for Shelby Ashton Holliday BSN, RN, CCRN who is applying to the Southern Medical Consultants LLC Nursing Research Council for application and approval of her Clinical Doctoral Project. The focus and title of her evidenced-based project is *Educating Providers Regarding the BWHS Breast Cancer Risk Calculator in a Rural Primary Care Setting: A Quality Improvement Project.* The site is in the rural primary care setting.

I have discussed this topic with Shelby Ashton Holliday and support and recommend the need for the introduction of the Black Women's Health Study (BWHS) Breast Cancer Risk Calculator in a rural Mississippi clinic to educate providers and assess performance. I understand that the interventions of provider education, and quantitative pre and post-test design would be done for 21 days.

After data analysis, I understand that Shelby Ashton Holliday will present her findings to the ID team.

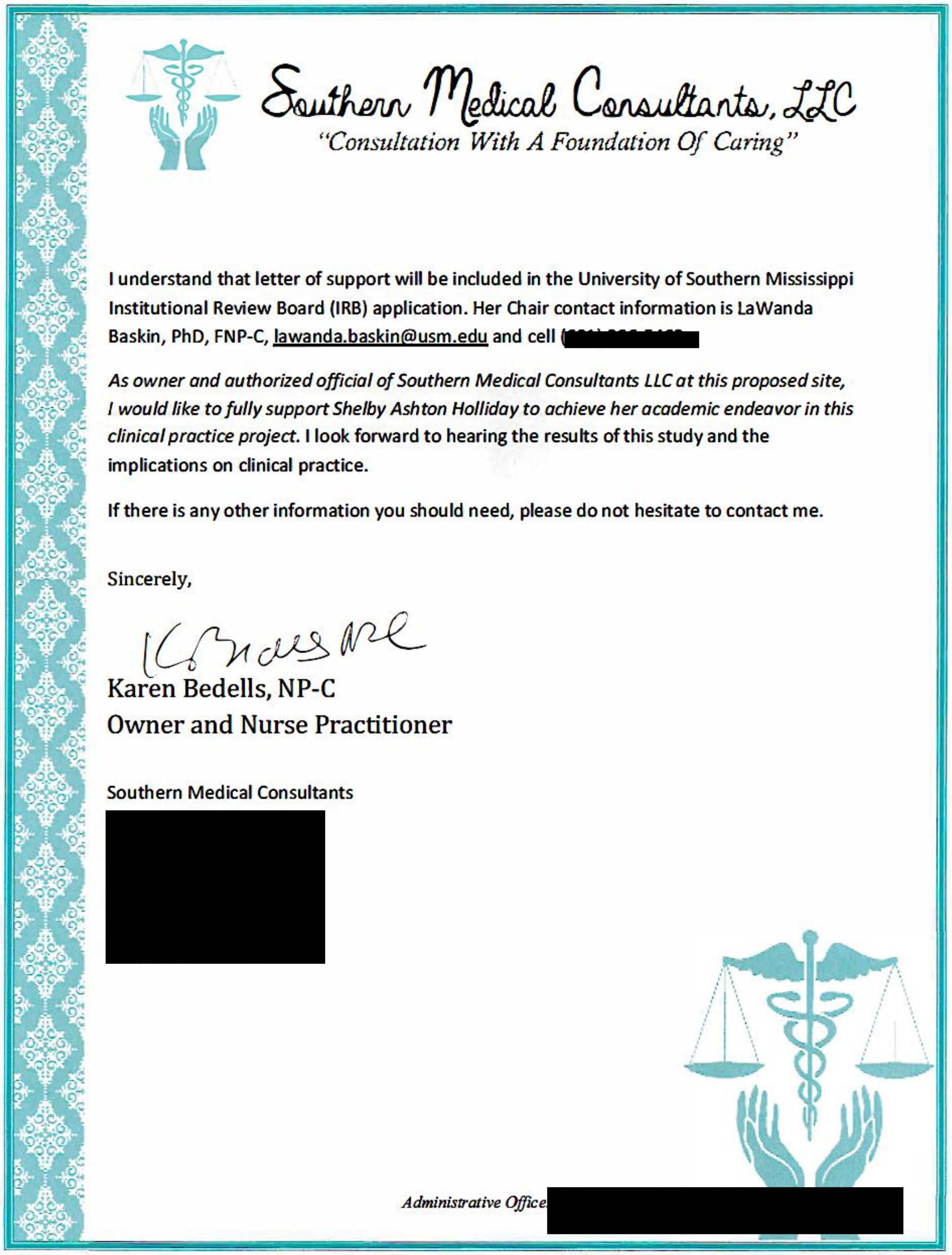
I understand that following approval by the Nursing Research Council, she will seek approval from the to The University of Southern Mississippi Institutional Review Board (IRB) for final approval of her Clinical Doctoral Project proposal. At present, I understand that Shelby Ashton Holliday is a full-time BSN-DNP (Family Nurse Practitioner) student in the Doctor of Nursing Practice Program at the University of Southern Mississippi, Hattiesburg campus.

I am the owner and authorized official of Southern Medical Consultants LLC established in Pearl, Mississippi. I am offering this letter of support of the doctoral student, Shelby Ashton Holliday, in her doctoral project as titled above and look forward to hearing her findings.

I understand that participation by the ID team members is completely anonymous and voluntary. There is no compensation for their participation.

I understand the planned dates are 7 days from USM IRB approval is received.

Administrative Office: [redacted]



Southern Medical Consultants, LLC
"Consultation With A Foundation Of Caring"

I understand that letter of support will be included in the University of Southern Mississippi Institutional Review Board (IRB) application. Her Chair contact information is LaWanda Baskin, PhD, FNP-C, lawanda.baskin@usm.edu and cell [redacted]

As owner and authorized official of Southern Medical Consultants LLC at this proposed site, I would like to fully support Shelby Ashton Holliday to achieve her academic endeavor in this clinical practice project. I look forward to hearing the results of this study and the implications on clinical practice.

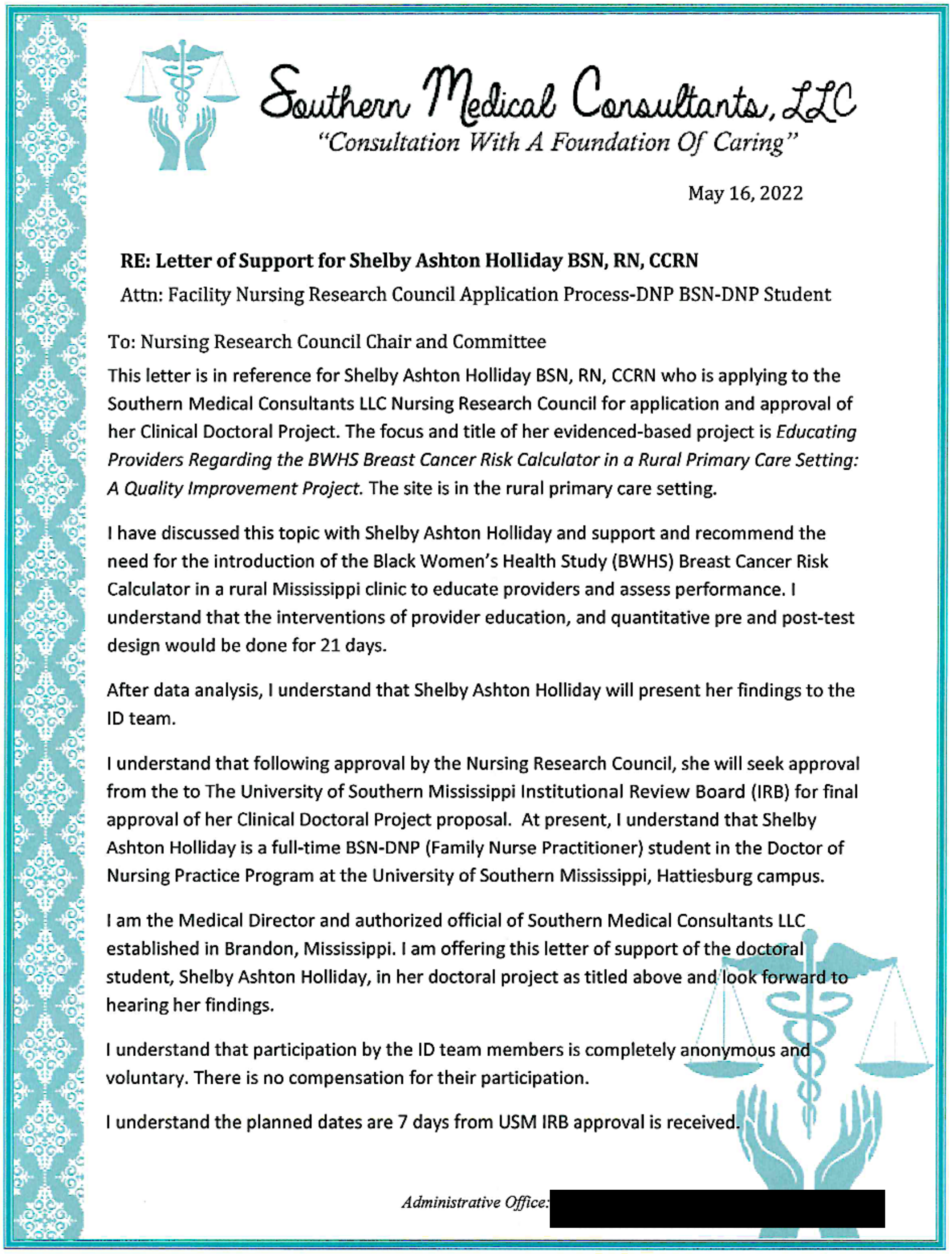
If there is any other information you should need, please do not hesitate to contact me.

Sincerely,

Karen Bedells, NP-C
Owner and Nurse Practitioner

Southern Medical Consultants
[redacted]

Administrative Office [redacted]



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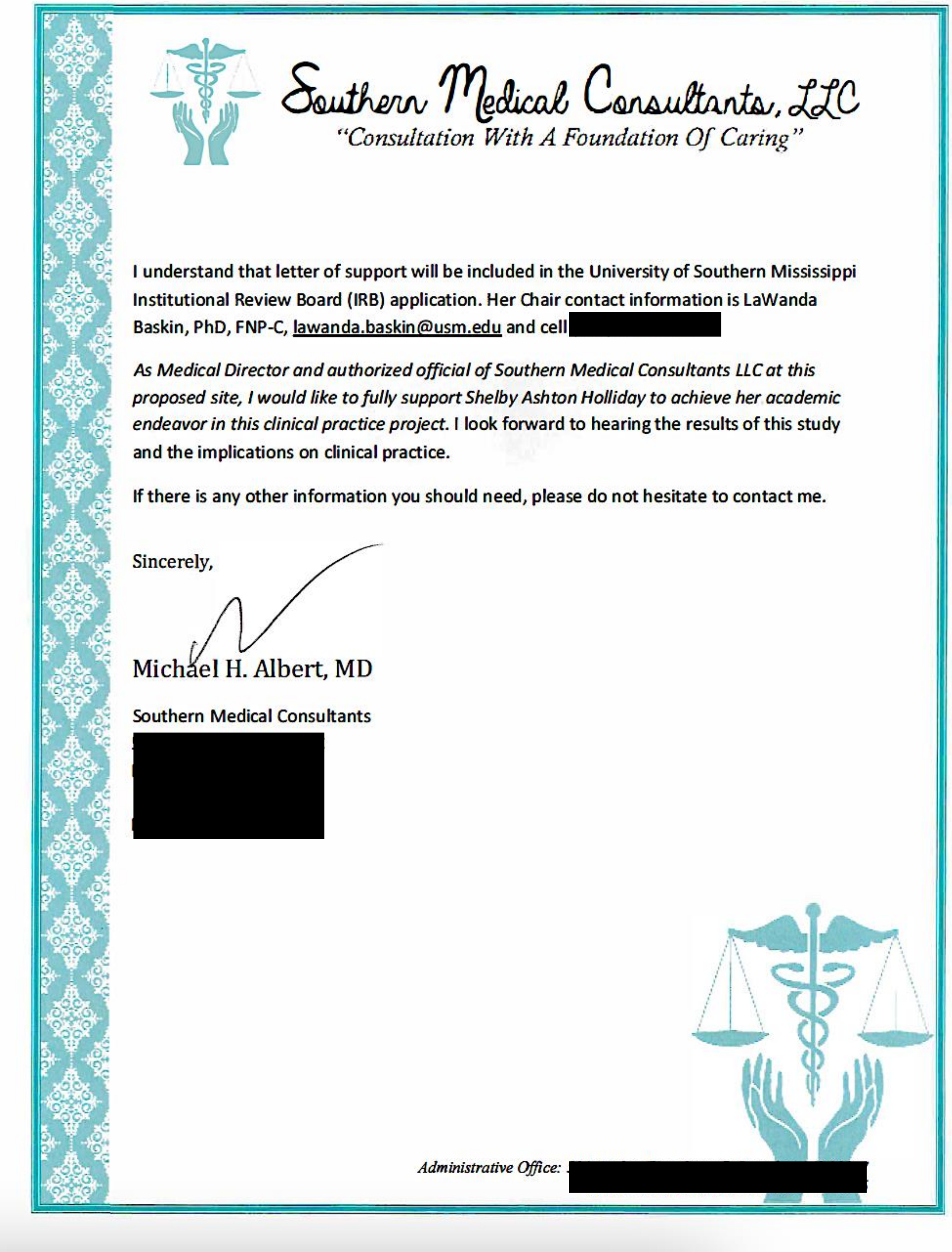
Administrative Office: [redacted]



Southern Medical Consultants, LLC
"Consultation With A Foundation Of Caring"

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As Medical Director and authorized official of Southern Medical Consultants LLC at this proposed site, I would like to fully support Shelby Ashton Holliday to achieve her academic endeavor in this clinical practice project. I look forward to hearing the results of this study and the implications on clinical practice.

If there is any other information you should need, please do not hesitate to contact me.

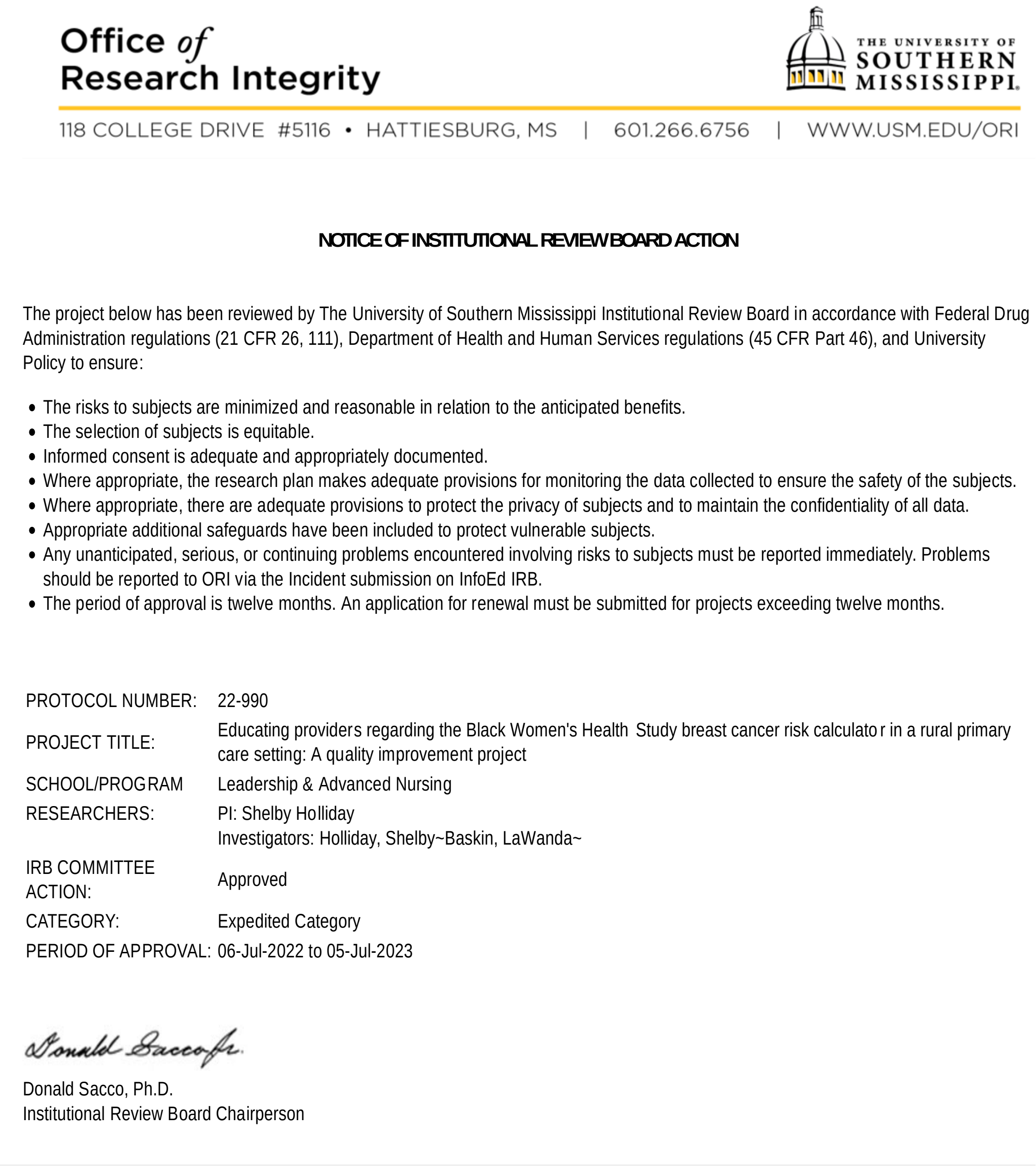
Sincerely,

Michael H. Albert, MD

Southern Medical Consultants
[redacted]

Administrative Office: [redacted]

APPENDIX K – IRB Letter of Approval



Office *of* Research Integrity

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NOTICE OF INSTITUTIONAL REVIEW BOARD ACTION

The project below has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services regulations (45 CFR Part 46), and University Policy to ensure:

- The risks to subjects are minimized and reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered involving risks to subjects must be reported immediately. Problems should be reported to ORI via the Incident submission on InfoEd IRB.
- The period of approval is twelve months. An application for renewal must be submitted for projects exceeding twelve months.

PROTOCOL NUMBER:	22-990
PROJECT TITLE:	Educating providers regarding the Black Women's Health Study breast cancer risk calculator in a rural primary care setting: A quality improvement project
SCHOOL/PROGRAM	Leadership & Advanced Nursing
RESEARCHERS:	PI: Shelby Holliday Investigators: Holliday, Shelby~Baskin, LaWanda~
IRB COMMITTEE ACTION:	Approved
CATEGORY:	Expedited Category
PERIOD OF APPROVAL:	06-Jul-2022 to 05-Jul-2023

Donald Sacco Jr.

Donald Sacco, Ph.D.
Institutional Review Board Chairperson

REFERENCES

American Association of Colleges of Nursing (AACN). (2022). *DNP essentials* (The Essentials of Doctoral Education for Advanced Nursing Practice (2006)) [DNP Essentials]. AACN. https://www.aacnnursing.org/DNP/DNP-Essentials

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