

OAKLAND UNIVERSITY WILLIAM BEAUMONT

Introduction

Breast Cancer is the second leading cause of cancer-related deaths among women in the US and the most common cancer among women in the US¹. Overall, however, breast cancer mortality rates have been declining since 1990 due to improvements in screening rates and secondary prevention. Mammograms specifically have become cost free for individuals meeting the United States Preventative Services Task Force guidelines based on age and frequency of tests after the 2010 Affordable Care Act.

Nonetheless, individuals of minority racial groups tend to experience higher mortality and incidence of breast cancer despite similar screening rates¹. Black women have a mortality rate of 42% higher than other women¹. Factors related to increased mortality include more advanced stage at diagnosis, poor access to care, and increased risk of developing more aggressive subtypes such as triple negative breast cancer².

Aims and Objectives

This study aims to understand whether there is a difference in screening rates among races in a state by state, and regional basis. The goal of this study is to assess trends in breast cancer screening between non-Hispanic White (NHW) women and Black women in the United States using the 2016 and 2018 Behavioral Risk Factor Surveillance System (BRFSS) data.

This is a descriptive study that will assess the nationwide and regional differences in both mammogram and cervical cancer screening between Black women and NHW. Data from the 2012 – 2018 surveys of the BRFSS was used for the purpose of our analysis. Only even years have cancer screening information, with breast cancer screening being defined as mammography within 2 years of survey. Coordinated by the Centers for Disease Control and Prevention, the BRFSS is the world's largest continuously conducted health survey collecting health-related data from residents in all 50 states as well as the District of Columbia and 3 U.S. territories. This is a telephone-based survey, covering both landlines as well as mobile users, using standardized questionnaires administered to a stratified randomized sample of the U.S. population aged over 18 years. We only looked at women between 45 and 75 as part of this project to be consistent with other literature and American Cancer Society cancer screening guidelines. We included all 50 states plus the District of Columbia.

A positive DI indicates White women are screened more often than Black women while a negative DI indicates White women are screened less than Black women.

The adjusted screening rates are adjusted for Race of Patient, General Health Status, Health Insurance, Having a PCP, Marital Status, Educational Attainment, Household Income, Age of Patient, and Smoking Status. There is also adjustment for year of survey when looking at the regional and state comparisons. These adjusted rates are generated using complex samples logistic regressions. The weights, cluster, and strata of the BRFSS were used in the design of the study and subsequent analysis. Any P-Value < 0.05 indicates a statistically significant association. All analysis was done in SAS 9.4 (SAS Institute Inc., Cary, NC, USA) and Stata 13.1 (StataCorp, LP, College Station, Texas, USA).

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Methods

Disparity Index (DI) is calculated as:

= Adjusted Screening Rate in White - Adjusted Screening Rate in Black

Results

Overall, Black women had a breast cancer screening rate of 82.24% while NHW had a screening rate of 76.85% (p < 0.0001). Only three states (Idaho, Wyoming, and West Virginia) had a significant positive disparity index, meaning that NHW had higher screening rates than Black women. In addition, the disparity index had remained stable from 2014-2018 at about 4% (Figure 1), meaning that the differences in screening rates did not change very much over that time period. In 6 of 9 Census regions, there was a significant negative disparity (Figure 2). In 2 of 9 Census regions, there was a negative disparity; however, the disparity was not significant. In 1 Census region, there was a positive disparity; however, the disparity was not significant. These Census regions are outlined below in Table 1.





Figure 1: National Disparity Index

Figure 2: Disparity Index by Census Region

Table 1: Disparity Index by Census Region

Region	DI (95% CI)	
New England	1.30% (-2.38%, 4.99%)	
Middle Atlantic	-3.67% (-6.74%, -0.60%)	
East North Central	-3.80% (-6.69%, -0.90%)	
West North Central	-4.61% (-7.79%, -1.42%)	
South Atlantic	-2.93% (-5.16%, -0.69%)	
East South Central	-1.51% (-4.00%, 0.97%)	
West South Central	-6.63% (-10.13%, -3.12%)	
Mountain	-0.80% (-5.66%, 4.06%)	
Pacific	-6.12% (-10.62%, -1.62%)	

Conclusions

The data suggests that, overall, Black women continue to have higher screening rates despite higher mortality and incidence of breast cancer. The data suggests that policy makers and healthcare providers should shift their focus from cancer screenings towards reducing mortality rates among minority women who already have breast cancer. Such information can allow healthcare systems and providers to be more mindful of specific barriers that may lead to discrepancies across racial groups, such as losing patients to follow up, cultural differences, or lack of access to high-quality medical care.

References

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Acknowledgements

Dr. Sawarynski, Dr. Baxa and the rest of the Embark team.

0.2440 0.0096 0.0051 0.0023 0.0051 0.1165 0.0001 0.3730 0.0038



