PS4-12-19: Ethnoregional Disparities in Breast Cancer Screening: A National Database Analysis

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Background

- Breast cancer is the most diagnosed cancer among U.S. women, yet major inequities in screening mammography persist.
- Hispanic, American Indian/Alaska Native (AIAN), and Non-Hispanic Black women face disproportionately lower screening rates, contributing to delayed diagnoses and worse outcomes.
- Understanding ethnic and regional variation in screening patterns is critical for identifying high-risk populations and guiding targeted public-health interventions.

Introduction

- As the most diagnosed cancer in U.S. women, breast cancer makes timely screening critical for early detection and improved survival.
- The Behavioral Risk Factor Surveillance System (BRFSS) provides the most comprehensive, population-based surveillance of preventive health behaviors in the United States. Its model-based, age-adjusted state estimates allow reliable comparison of mammography screening patterns across diverse ethnic groups and regions.
- These inequities contribute to delayed diagnoses, advanced-stage presentation, and poorer outcomes in historically underserved groups.
- Geographic variation plays a major role, with screening access and utilization differing across U.S. Census regions.
- Understanding ethnicity- and region-specific screening patterns is necessary to identify high-risk populations and guide targeted, equitable public health interventions.

Methods and Materials

- Data Source: Utilized 2022 BRFSS model-based, age-adjusted mammography prevalence estimates for women aged 50–74 years, including 95,728 respondents across all 50 states and Washington, DC
- Population Groups: **Focused analyses on Hispanic (18.7%), Non-Hispanic Black (12.4%), and American Indian/Alaska Native (AIAN) women (1.1%)** due to consistent and reliable state-level estimates.
- Geographic Framework: Screening prevalence was compared across four U.S. Census regions: Northeast, Midwest, South, and West.
- Primary Outcome: Age-adjusted prevalence (%) of receiving a mammogram, "Yes" within the past two years(Figure 1.)
- **Statistical Analysis: Group differences were assessed using Kruskal–Wallis, followed by Dunn's post-hoc pairwise comparisons with Bonferroni correction.**

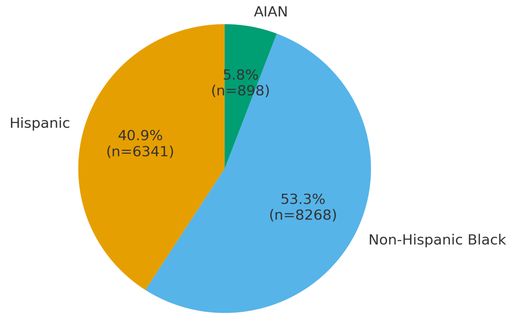


Figure 1: Distribution of Respondents by Ethnicity

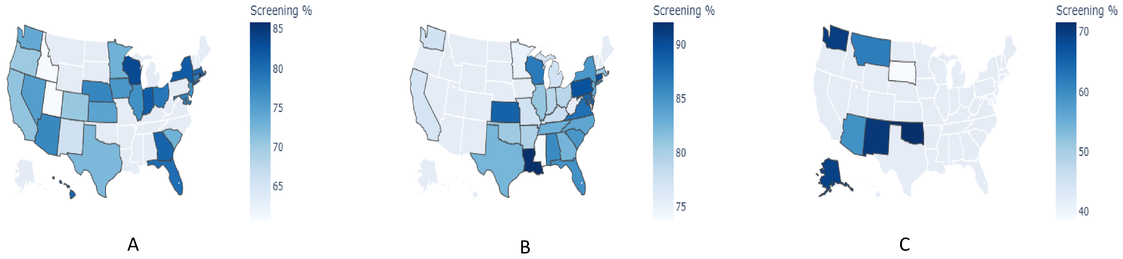
Results

- **Significant disparities in mammography screening were observed across ethnic groups and U.S. regions (Kruskal–Wallis $p < 0.001$). (Figure 2 A-C)**
- Non-Hispanic Black women consistently had the highest screening rates across all four regions.
- **Hispanic women showed moderate but regionally variable uptake, with the lowest screening in the Western U.S**.
- **AIAN women had the lowest and most uneven screening, with pronounced deficits in the West and Upper Midwest** and data suppression in several states.
- A clear ethnicity × region interaction was evident, highlighting specific geographic clusters of under-screening.

Discussion & Conclusion

- Hispanic and AIAN women show the lowest and most geographically uneven screening rates, with the most pronounced deficits in the Western U.S.
- Non-Hispanic Black women consistently maintain the highest screening prevalence, suggesting more effective preventive engagement across regions.
- **Black women maintain the highest screening, while Hispanic and AIAN women—especially in the West—remain drastically underserved. Region + ethnicity drives hidden disparities not visible in national averages.**

Figure 2. State-level mammography screening prevalence (BRFSS 2022) for Hispanic(A), Non-Hispanic Black(B), and AIAN women(C), showing consistently high screening among Black women and lower, regionally uneven coverage among Hispanic and AIAN women—especially in the West.



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