Prevalence of Behavioral Health Outcomes Among Racial and Ethnic Minority Breast Cancer Patients/Survivors in the US: New Evidence from Longitudinal MEPS Analysis

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Introduction

Past literature shows that more than a quarter of individuals treated for cancer have experienced mental health issues including depressive disorders and anxiety.[1] One-third of cancer survivors suffer from emotional or mental distress. Mental health disorders are most prevalent in breast cancer (42%) and neck cancer (41%). Cancer-related mortality is higher among those with mental health disorders. Cancer survivors suffering from depressive disorders, for example, have a 39% higher risk of mortality when compared with non-depressed cancer survivors.[2] Fear of cancer recurrence and its treatment outcomes, loss of economic and social support and fear of isolation could possibly exacerbate pre-existing mental health conditions and increase the likelihood of chronic depressive disorders, in addition to the direct impact of cancer.[3] The purpose of this study is to understand racial/ethnic disparities in the prevalence of behavioral health outcomes among breast cancer patients/survivors (patients hereafter).

Data

Data Source: 2009-2019 Medical Expenditure Panel Survey (MEPS)-Household Component
- Detailed information on demographic and socioeconomic characteristics and health conditions is included.

Study Sample: Breast cancer patients whose race/ethnicity is reported as non-Hispanic White (White hereafter), non-Hispanic Black (Black hereafter), or Hispanic

Outcome: An indicator for whether the person has behavioral health conditions or not, constructed from the Kessler Screening Scale for Psychological Distress (K6) and the Patient Health Questionnaire (PHQ-2)

Explanatory Variables: See (1)-(8) under Table 1.

Methods

Kitagawa-Oaxaca-Blinder Decomposition Method:[4-6] Use stratified (by race/ethnicity) linear probability models to decompose racial/ethnic differences in the outcome into:
(1) Explained differences that can be attributed to differences in observable characteristics
(2) Unexplained differences

Consider the following regression equation for individual i in group $j \in \{W(White), M(Minority\ group)\}$:

$$Y_{ij} = \beta_{0j} + \sum_{k=1}^{K} \beta_{kj} x_{kij} + u_{ij}$$

where Y_{ij} is the indicator of having behavioral health conditions, x_{kij} are a set of explanatory variables (i.e. observable characteristics listed in Table 1), and u_{ij} is the error term.

We can decompose the difference in the mean rate of behavioral health conditions between groups M and W as:

$$\bar{Y}_W - \bar{Y}_M = \underbrace{\left[\sum_{k=1}^{K} \hat{\beta}_{kM}(\bar{x}_{kW} - \bar{x}_{kM})\right]}_{\text{Explained differences}} + \underbrace{\left[(\hat{\beta}_{0W} - \hat{\beta}_{0M}) + \sum_{k=1}^{K}(\hat{\beta}_{kW} - \hat{\beta}_{kM})\bar{x}_{kW}\right]}_{\text{Unexplained differences}},$$

where a hat (^) denotes the estimated value and an overbar (‾) denotes the mean of the variable.

Figure 1. Unadjusted Rate of Behavioral Health Conditions among Breast Cancer Patients by Race/Ethnicity, 2009-2019 MEPS HC
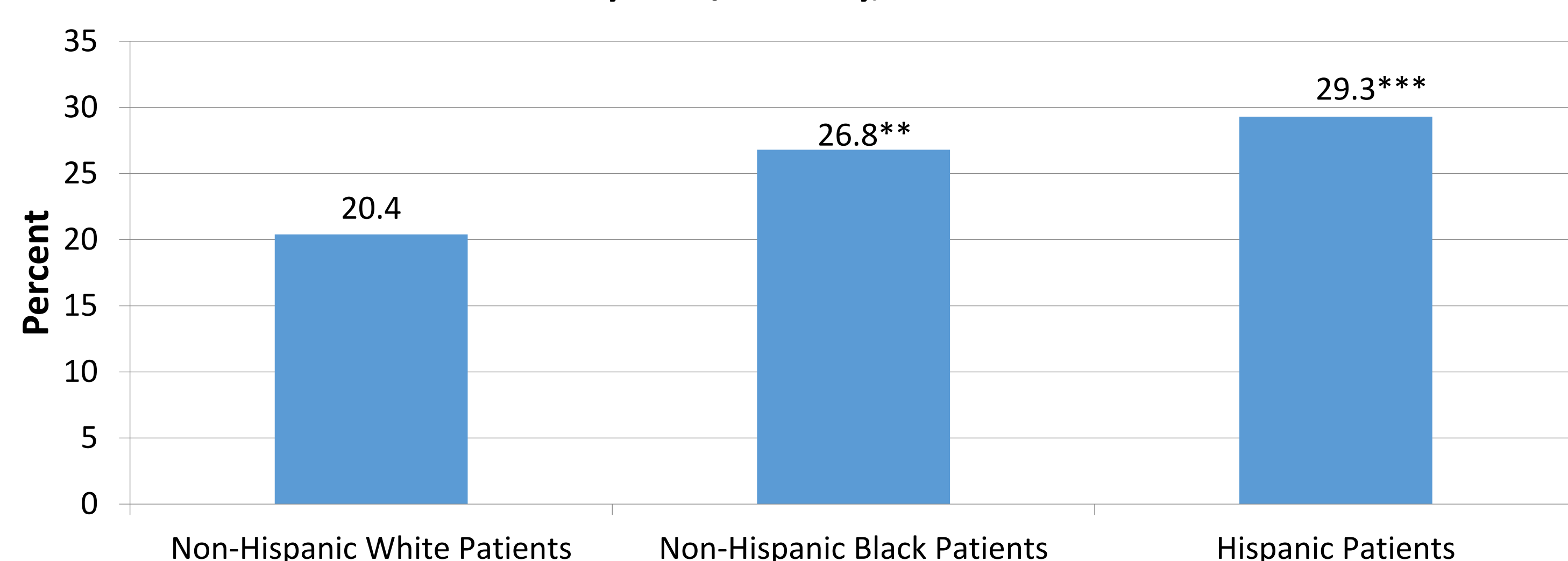
, *: statistically different from the rate for White patients at the 5 and 1 percent level, respectively.

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Results

- Unadjusted rate of behavioral health conditions was higher among Black patients and Hispanic patients than among their White counterparts (Figure 1).
- If Black patients had the same observable characteristics as White patients, their rate of behavioral health conditions would decrease by 7.2 percentage points (p<0.05, Table 1) .
  - Age (p<0.05), educational attainment (p<0.05), income (p<0.10), marital status (p<0.10), and Census regions (p<0.10) are the primary determinants of disparities between Black and White patients.
- Although the estimate is not statistically significant, if Hispanic patients had the same observable characteristics as White patients, the point estimate suggests that the rate of prevalence would increase by 4.4 percentage points.
  - If Hispanic patients had similar access to care (p<0.10), had similar prevalence of other chronic conditions (p<0.10), and lived in the same Census regions (p<0.10) as White patients, the difference in prevalence would be larger.

Table 1. Kitagawa-Oaxaca-Blinder Decomposition Results (in Percentage Points)

	Black-White Disparities	Hispanic-White Disparities
Actual differences	-6.4**	-8.9***
Amount of difference attributable to differences in means (i.e. explained difference)	-7.2***	4.4
Amount of difference attributable to differences in means of specific sets of variables:		
(1) Age	-2.9**	-2.3
(2) Marital status	-2.0*	-0.3
(3) Educational attainment	-2.8***	1.1
(4) Born in U.S.	0.1	2.1
(5) Income	-1.7*	-2.6*
(6) Access (health insurance types, has a usual source of care)	0.5	2.0*
(7) Has other chronic conditions	0.0	1.8*
(8) Census regions	1.6*	2.7*

*, **, ***: statistically significant at the 10, 5, and 1 percent level, respectively.

Discussion

The persistent mortality gap between Black and White women could be linked to multiple economic, social, behavioral and health factors. Beside the health system related risk factors such as limited access to affordable health insurance, existing studies have also shown that Black breast cancer survivors are more likely to suffer from other chronic health conditions including mental health issues.[8,9] However, there is limited evidence on the differential mental health impact of breast cancer across racial and ethnic groups in the US and its evident linkage to racial and ethnic mortality disparities. Using the nationally representative dataset, MEPS 2009-2019 and applying Kitagawa-Oaxaca-Blinder Decomposition model, this work shows that an actual disparity exists in the prevalence of mental health disorders among different racial and ethnic groups. It also shows that: (1) the disparities between Black and White patients can be explained by existing disparities in observable characteristics; and that (2) the disparities between Hispanic and White patients cannot be explained by observable characteristics.

Conclusions

Overall, this study suggests that non-Hispanic Black and Hispanic breast cancer patients have a higher prevalence of behavioral health conditions compared to non-Hispanic White patients. As such, efforts to bolster financial and psychosocial coping resources among these groups should be explored. This is especially important given the higher odds of cancer diagnosis in minorities with lower socioeconomic indicators (education and income) when compared to non-Hispanic Whites. As such, efforts to improve socioeconomic status could avert the number of cancer deaths and the associated burden in society.

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