Differences in Breast Cancer Survival by Race

To the Editor Dr Silber and colleagues\(^1\) reported survival differences among black and white women with breast cancer. However, screening overdiagnosis may weaken the results of this and prior studies on the topic.

For example, cases detected through screening mammography are sometimes diagnosed as breast cancer even though they would never be noticed otherwise. These overdiagnoses can lead to unnecessary treatments.\(^2\) Recent studies have prompted disagreement about the extent of overdiagnosis.\(^3\) Despite this attention, the effect of overdiagnosis on survival disparities is unclear.

Here is a simplified example to explain how overdiagnosis could alter survival. Silber and colleagues\(^1\) reported 5-year survival of 55.9% for black patients and 59.5% for treatment-matched white patients, a 3.6% difference (Table 2 in article). For illustrative purposes, suppose 7.5% of black patients and 15% of matched white patients were overdiagnosed with harmless tumors and did not die over the next 5 years. Survival for true breast cancer is estimated by subtracting the percentage of overdiagnosis from survival numerators and denominators. Specifically, estimates would be (55.9−7.5)/\(100−7.5\) = 52.3% and (59.5−15)/(100−15) = 52.3% for black and matched white patients respectively, a 0% disparity. Conversely, supposing 15% of black patients and 7.5% of matched white patients were overdiagnosed, the corrected survival difference would be 8.1%, which is more than twice the estimate by Silber and colleagues.

For clarity, we made several simplifications in this example. It ignores lead-time bias and assumes that overdiagnosed patients have little risk of death. Yet with Bleyer and Welch\(^4\) reporting that 31% of breast cancers were overdiagnosed as of 2008, we believe our example illustrates how estimates of survival disparities are sensitive to the precise extent of overdiagnosis. In the study by Silber and colleagues,\(^1\) it appears that unrecognized overdiagnosis could significantly alter the results.

Overdiagnosis bias is equally relevant to past studies of breast cancer survival disparities, including those based on randomized controlled trials. Indeed, the meticulous approach used by the authors appears more robust than previous studies because matching tumor characteristics lessens differences in screening, which could reduce bias from overdiagnosis. Perhaps the authors could recreate Table 2 including only patients known not to have been screened recently before their diagnoses.

For 25 years, it has been reported that much of the difference in breast cancer survival between black and white women is unexplained, but a variety of studies have concluded that the disparity is largely unrelated to differences in treatments.\(^1,5\) Yet overdiagnosis may have obscured the real burden of inequalities in care.

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In Reply Our study examined all 7375 black women older than 65 years diagnosed with breast cancer between 1991 and 2005 in the Surveillance, Epidemiology, and End Results database. Although Mr Harding and colleagues quote various numbers to illustrate the potential effect of overdiagnosis on racial disparities in breast cancer survival, these are hypothetical.

We matched patients for cancer stage and many other characteristics, in which stage was determined from the database based on chart review. That chart review included information from biopsy and postsurgical pathology. On this basis, patients with ductal carcinoma in situ (DCIS) were excluded from our data set. Although overdiagnosis may lead to unnecessary biopsies or unneeded treatment of patients with DCIS, neither of these possibilities are relevant to our study. Harding and colleagues cite an Editorial by Esserman et al1 that referred to the problematic diagnosis of DCIS when estimating cancer survival and suggest that premalignant conditions (eg, ductal carcinoma in situ or high-grade prostatic intraepithelial neoplasia) should not be labeled as cancers or neoplasia, nor should the word ‘cancer’ be in the name.2 Harding and colleagues suggest an additional analysis that takes account of breast cancer screening.

As suggested, in each of our 3 matched black and white patient comparisons, we adjusted for the indicator of mammographic screening and obtained results qualitatively similar to those reported in Table 2 of our article. Initially, black and white patients had different survival prospects, but the majority of this difference was removed by comparing black and white women with similar cancers (eg, stage, size, grade, estrogen-receptor status) and similar comorbidities (eg, congestive heart failure, diabetes). Black women received somewhat inferior cancer treatment, but this explained only a small portion of the disparity in survival. These results are not changed by adjustment for screening.

The adjustment used the Cox proportional hazards model for paired survival data as used several times for other analyses in our study (eg, the adjustment for income). After adjustment for screening, the black-white hazard ratio was 1.41 (95% CI, 1.32-1.50) in the demographic match, 1.11 (95% CI, 1.04-1.18) in the presentation match, and 1.05 (95% CI, 0.98-1.11) in the treatment match. Consistent with Table 2, there is a large initial disparity that is mostly explained by differences in presentation, not differences in treatment.

Discussions of our study by Harding and colleagues and others1 have confused 2 different questions. First, does treatment matter for survival? Second, do disparities in treatment explain most of the disparity in survival? To explain the black-white disparity in survival following a diagnosis of breast cancer, treatment would have to matter for survival and also be substantially different for black and white patients with similar disease.

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Therapy for Posttraumatic Stress and Alcohol Dependence

To the Editor In a randomized clinical trial, Dr Foa and colleagues1 examined prolonged exposure psychotherapy for co-occurring posttraumatic stress disorder (PTSD) and alcohol dependence. Prolonged exposure therapy was studied in relation to supportive counseling, use of naltrexone, and a pill placebo. The article provides an example of how the same findings can be interpreted quite differently when considered from a public health perspective.

Results of the trial were null for prolonged exposure therapy; it did not show a main effect on substance use disorder or on PTSD compared with supportive counseling. Yet the authors concluded simply that prolonged exposure therapy did not exacerbate substance use disorder. Thirty-five studies of PTSD with substance use disorder, ranging from pilot studies to multisite trials, have shown that treating PTSD in the context of substance use disorder does not worsen either disorder.2

Letters