Response

We appreciate the opportunity to respond to thoughtful comments—both methodological and conceptual—regarding our analysis (1).

Concern was raised about our method of adjusting for socioeconomic status (SES). This requires special focus because it points to the larger issue of the nature of the data used in the analysis. Data analysis hinges not just on statistics but also on the subjects under study and on the nature and quality of the data pertaining to the subjects. We used a well-characterized clinical trials
Correspondence

Comparisons of zip data, a methodology that is used extensively to assess area levels found few differences (4,5,11). Krieger et al. (13) observed some inconsistencies when they used zip code for cancer incidence but observed little for cancer mortality, the subject of our study. Importantly, zip code level coding in our study indeed identified widely disparate rates of education and income between African American patients and other patients (table 3 in Albain et al.), suggesting that zip code level geocoding in this context worked reasonably well as an SES proxy (1). However, because our study already fully adjusted for the essential adverse disease factors between African American patients and other patients, additional SES adjustment had minimal effect.

We wish to address additional concerns. Multiple testing was not conducted across the different cancer types because each analysis within a cancer was considered a separate experiment. However, even accounting for multiple comparisons, such as with Holm–Bonferroni (14), all four analyses that found differences by race remain statistically significant. Another concern was that higher mortality from competing risks in the African American population could increase differences in overall survival results (15). Cause-specific survival can account for some of this concern, but cause-of-death information can be missing or unreliable and the interpretation of cause-specific survival relies on statistical independence of cancer outcomes from other competing risks, which is rarely a safe assumption (16). However, our additional cause-specific analyses (table 3 in Albain et al.) still found a statistically significant disparity.

Others questioned high rates of missing SES data (17,18) that we reported for some diseases (table 3 in Albain et al.). However, the highest rates of available SES data were for the diseases with disparities, among which concern about SES confounding was greatest. To address another concern about loss of information because of coding SES above and below the median value, we repeated analyses with SES factors left as continuous variables and results were similar. Bias as a result of including a missing category is concerned with estimation of the odds ratio, not about controlling for confounding (19). Issues raised about underrepresentation of African American patients in Southwest Oncology Group trials are belied by consecutive reports in 1999 and 2006, in which accrual of African American patients was consistently commensurate with their cancer rate in the general population (20,21). Some readers were concerned that we had not adjusted for body mass index (22), even though we indeed incorporated it into the analysis, as reported in the “Methods” and “Results” sections (1). One correspondence (15) stated that there was no disparity for African American patients in two National Surgical Adjuvant Breast and Bowel Project studies (23,24), in fact the larger (24) of these two studies with greater power found statistically significant difference in overall survival, although of smaller magnitude than we reported. Finally, we acknowledge that we cannot represent the full spectrum of culture and ancestry in the simple questions used to designate race in National Institutes of Health–sponsored studies.

What remains is a statistically significant difference in mortality which is “materially important,” as one correspondence succinctly stated (25). We did not intend to imply that access to care has no role in the reduced survival benefits for African American patients in the general cancer population; it most certainly does and may account for the majority of observed disparity in cancer population databases. Nonetheless, ancestry and race may affect cancer incidence and survival beyond environmental and economic influences, and, therefore, knowledge of such influences would be critical in addressing disparity. Our analysis showed that in a setting in which access to care is reasonably well accounted for, African American patients still have worse outcomes, but only in certain cancers (breast, prostate, and ovarian). In this context, our hypothesis is entirely reasonable that biological mechanisms (hormonal plus others) that are specific to these cancers—interacting with common genes that track with ancestry—may play a role in this disparity. Concurrent examination of tumor and host biology no doubt will further explain these differences in survival. With additional improvements in access to care and appropriate treatment (given tumor biology and host gene profiles), our shared goal of removing health disparities may be realized.

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References


Notes

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