

CORR Insights®: Do Community-level Disadvantages Account for Racial Disparities in the Safety of Spine Surgery? A Large Database Study Based on Medicare Claims

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Where Are We Now?


It is well described that 70% to 80% of the difference in life expectancy

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between Black and White Americans can be attributed to socioeconomic status (SES)-related factors [8]. SES is associated with systemic differences in outcomes among groups, including differential rates of chronic and life-shortening conditions such as hypertension, diabetes, chronic kidney disease, and chronic obstructive pulmonary disease [8]. Retrospective studies have identified associations of race, SES, and mortality with an increased likelihood of readmission after surgical procedures, including spine surgery [1, 3].

The path to understanding healthcare disparities parallels the steps of data curation—meticulous and organized data aggregation to enhance comprehension. Because SES is multifactorial, it adds another layer of complexity to the sensitive topic of racial disparities in healthcare. Leopold [9] has written about the importance of being punctilious when reading studies on racial disparities in healthcare.

In this issue of *Clinical Orthopaedics and Related Research®*, Engler et al. [7] retrospectively evaluated safety outcomes in 419,533

Medicare beneficiaries aged 65 years or older who underwent inpatient spine surgery from 2015 to 2019. The authors found that social disadvantage explains nearly 50% of the disparities in safety outcomes that would have been attributed to race, had social disadvantage not been factored into the model. However, even after accounting for differences in SES, Black people had a higher mortality rate and complication rate after spine surgery than White people did. These findings indicate there are other undocumented parameters that affect outcomes in Black patients. These factors warrant further investigation to better understand healthcare disparities.

Where Do We Need To Go?

We need to go back to the data. Acknowledging there are disparities based on the Social Vulnerability Index (SVI) and independent racial factors is the first step, but further investigation is necessary to uncover root causes and explanations for how disparities directly impact patient care. Hence, it is important to curate data to understand the involved variables. Braveman et al. [4] eloquently stated that better SES measures are necessary in healthcare research. Ultimately, improvements in current SES measurements may result from using existing

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information more thoughtfully while acknowledging its limitations [4].

Thus, it is imperative to better understand SES measures for thoughtful application in medical and orthopaedic research. Likewise, Engler et al. [7] suggest that research on racial health disparities in orthopaedics should account for the SVI to avoid suggesting that race alone causes any observed differences in complications among patients when factors related to social deprivation have the greatest effect on outcome. Although SES accounts for a large portion of the difference in outcomes between Black and White patients, there is still some difference based on race (or other unidentified or confounding variables for which race may be a proxy). This difference may be because of undocumented comorbidities, perception of healthcare, and physician-patient interactions that cannot be accurately measured [7]. For example, the United States military health system provides healthcare beneficiaries with equal access to care despite race, ethnicity, or SES. Despite equal access to care for some patients, survival outcomes still differ between Black and White patients for some conditions [5, 6]. This indicates that factors other than access to care may be responsible for inequalities in outcomes and further illustrates how multifactorial SES or the SVI really is. Therefore, it is important to understand the structure or components of these variables for research application. However, could healthcare disparities be more deeply rooted than the structure of variables? Mistrust of medical research and the healthcare infrastructure is real. But what is mistrust? It is the pervasive lack of confidence in the medical community because of inequities in access to health insurance, healthcare facilities,

and treatments. Patients from various racial and ethnic groups have different levels of trust in the healthcare system, and this in turn may result in delayed disease presentations [1].

How Do We Get There?

The question remains, how do we decipher the components of SES or the SVI to help resolve these problems beyond the complex variable of race? It is easy to become complacent and simply recommend yet another systematic or meta-analysis or large-registry study. However, as my mentor always suggested, we should proceed with caution before doing just another study. As clinician-scientists we must pause (particularly in this case) to think about how we can expand our clinical and critical reasoning skillsets to better treat our patients.

The Association of American Medical Colleges seems to be on that track for new medical trainees. The Association of American Medical Colleges New and Emerging Areas in Medicine Competency Series was developed by medical education and clinical practice guideline community leaders to provide guidance on healthcare curriculums and professional development [2]. In July 2022 (and appropriately timed for this commentary), the Association of American Medical Colleges announced diversity, equity, and inclusion competencies for medical educators [2]. The goal of these competencies is to assist the next generations of healthcare workers in understanding the complex interplay of SES and biological origins of disease when treating patients. These competencies are synergistic with Engler et al.'s [7] call for more-focused social

policies aiming to mitigate structural disadvantages in certain communities, and over time, the competencies may lead to a meaningful reduction in racial healthcare disparities.

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