

## EDITORIAL COMMENT

## Leveling Up

### Examining the Impact of Neighborhood Social Vulnerability on Comorbid Cardiovascular and Cancer Mortality\*



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*“You can’t really know where you are going until you know where you have been.”*

—Dr Maya Angelou<sup>1</sup>

Where one lives can have an effect on their health, and we have known this for decades.<sup>2</sup> The field of cardio-oncology, while relatively new, lags behind other fields, such as cardiology and oncology, regarding the examination and understanding of “place,” outcomes, and disparities in outcomes. Independently, studies in the cancer and cardiovascular disease (CVD) fields<sup>3,4</sup> have reported on the association between neighborhood contextual factors and outcomes, but what about individuals diagnosed with cancer and CVD?

In this issue of *JACC: CardioOncology*, Ganatra et al<sup>5</sup> sought to examine the association between social vulnerability and mortality related to cancer, CVD, and comorbid cancer and CVD. This retrospective cross-sectional study leveraged the Centers for Disease Control’s WONDER (Wide-Ranging Online Data for Epidemiologic Research) database. In this analysis, the investigators reported an age-adjusted mortality rate of 47.5 (per 100,000 person-years) for comorbid cancer and CVD. The mortality rate for comorbid cancer and CVD was significantly lower than

that of cancer and of CVD alone. Higher comorbid cancer and CVD mortality rates were found among adults >45 years of age, males, Black individuals, and rural residents as compared with individuals <45 years of age, females, non-Black individuals, and individuals who reside in metropolitan areas, respectively.<sup>5</sup>

The investigators also reported on mortality rate ratios comparing the least and most favorable quartiles of the social vulnerability index (SVI). The mortality rate ratios between the least and favorable quartiles of the SVI were highest for comorbid cancer and CVD when compared with cancer and with CVD alone. The impact of social vulnerability on comorbid cancer and CVD mortality, as defined by the rate ratio between the fourth and first SVI quartiles, was greatest for adults <45 years of age, females, and individuals identifying as Asian and Pacific Islanders or Hispanic as compared with their counterparts.<sup>5</sup> These findings are interesting, particularly because younger individuals were more affected by social vulnerability-related mortality than older individuals, and females were more affected than males. Regarding the former, the investigators suggested study results are most likely attributable to an increase in CVD risk factors in younger adults, rising poverty, and lack of affordable health care. Another plausible explanation is nonadherence to non-cancer medications among cancer survivors. For example, the Calip et al<sup>6</sup> study in breast cancer survivors reported that younger women with breast cancer were more likely to be nonadherent to antihypertensive agents and diabetes medications relative to their older counterparts.

So, what should or can we do about this? Ganatra et al<sup>5</sup> suggest next steps for research and for policies that could potentially mitigate racial disparities in comorbid cancer and CVD. This is commonplace for the discussion sections of scientific publications.

\*Editorials published in *JACC: CardioOncology* reflect the views of the authors and do not necessarily represent the views of *JACC: CardioOncology* or the American College of Cardiology.

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Charlotte Manisty, PhD, was Guest Editor of this paper.

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What was not as common, but welcoming, was their declaration, in a paragraph of its own, of what must occur to achieve equity in outcomes, such as investments in health care infrastructure, education for clinicians about social determinants of health, and prioritized preventative services for marginalized populations.<sup>5</sup> These are all excellent suggestions, but regarding social determinants of health, we must take it a step further. Health care systems must implement effective strategies to collect and address social determinants data within their walls and in their surrounding communities. The American Cancer Society offered recommendations for how multiple sectors can address social determinants to advance cancer equity.<sup>7</sup> Examples of recommendations include proactively partnering with disadvantaged communities/patients and supporting models of care that consider social risk.

There are numerous levels to the role of place with regard to health and health outcomes, and this work by Ganatra et al<sup>5</sup> provides a nice springboard into a deeper exploration within the context of cardiology. Topics such as neighborhood segregation and neighborhood social cohesion have been associated with cardiovascular risk and outcomes and exploration of these topics are burgeoning in the cancer literature.<sup>8-11</sup> Study findings pertaining to sociodemographic outcomes compared across SVI quartiles, reported in this recent analysis by the investigators, provide justification to examine social neighborhood factors that may explain racial, geographic, and age differences in cardio-oncologic outcomes.

Although the investigators discussed strengths and weaknesses of the SVI, it is important to note that this index mostly measures community preparedness for man-made and natural disasters at the census tract level. Future studies should also consider other measures, such as the area deprivation index,<sup>12</sup> which may be more reflective of individual socioeconomic

status by using smaller geographic units such as block data.

This is a salient study for the field of cardiology that deserves, not only the attention of researchers and patient advocates, but of clinicians as well. Outcomes, whether poor or favorable, have never been solely associated with individual behavior. When patients are actively receiving treatment and throughout survivorship, clinicians must consider how one's neighborhood or environment may contribute to their ability to access care, treatment adherence, and, ultimately, outcomes.

It is exciting to see more scholarly work, researchers, and clinicians acknowledge the relevance of place. It is critical, however, that we consider the words of Dr Angelou<sup>1</sup> quoted at the beginning of this editorial. We must take the time to learn from whence we came and consider the historical context. The variations in neighborhoods as it pertains to vulnerability did not just happen by chance. Redlining and other discriminatory laws and practices resulted in some neighborhoods thriving while others were intentionally subjected to disinvestment, disrepair, and predatory financial practices. As such, real and intentional efforts to address outcomes in patients with comorbid cancer and CVD must include more inclusive and equitable policy changes.

## FUNDING SUPPORT AND AUTHOR DISCLOSURES

The authors have reported that they have no relationships relevant to the contents of this paper to disclose

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**KEY WORDS** cancer, cardiovascular disease, neighborhood vulnerability