

VIEWPOINT

Understanding Race and Ethnicity in Cancer and CV Disease

COVID-19 and a Roadmap for Change



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The coronavirus disease-2019 (COVID-19) pandemic has disproportionately affected many racially and ethnically diverse communities, with up to twice the risk of infection and intensive care admission and 22% increased risk of mortality in the non-White population (1). The result has been an urgent concerted effort to mitigate these racial and ethnic inequities, with a focus on the potential biological, structural, and behavioral causes. Although the COVID-19 pandemic has exposed and exacerbated pre-existing inequities, similar racial and ethnic differences in risk and outcomes have existed across cancers and cardiovascular diseases (CVDs) over many decades (1). Siloed approaches to health care are unlikely to be effective during the pandemic, particularly for high-risk, multimorbid, multiracial, and ethnic patient groups. Our viewpoint is that there may be lessons from current work in COVID-19, which could be used as strategies to overcome the racial and ethnic disparities in cancer and CVD outcomes.

ETHNIC DISPARITIES IN RISK AND OUTCOMES FOR CANCER AND CVD

In England and Wales, 86% of the population are White, 7.5% are Asian (over one-half of which are Indian or Pakistani), 3.3% are Black African or

Caribbean, and 2.2% of the population have mixed race and ethnicity (1). Cancer and CVD prevalence and mortality are higher amongst these diverse groups (2). In England, Black men have twice the risk of diagnosis and mortality from prostate cancer compared with White men (2). Research in the United Kingdom found that 25% of Black African women and 22% of Black Caribbean women were diagnosed with late-stage breast cancer, compared with only 13% of White British women (3). Moreover, Black individuals experienced higher mortality rates.

The same ethnic disparities exist for CVD. In the United Kingdom, South Asian and Black individuals have earlier onset and higher prevalence of heart failure than Whites. These findings also exist in other parts of Europe. South Asians living in Italy have the highest rates of CVD mortality, increased prevalence of coronary heart disease, and higher hospitalization rates for myocardial infarction than other ethnic groups. South Asian immigrants have higher CVD rates in the Netherlands, France, Sweden, Norway, Denmark, and Spain compared with their local counterparts (4). In the United Kingdom, infants with congenital heart disease from an Asian background had 53% higher age-specific mortality compared with White British infants (5).

ETHNIC DISPARITIES DURING THE PANDEMIC

In the United Kingdom, there is evidence that non-White individuals are more likely to be tested and to test positive for severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2) (1). There are now well-established racial and ethnic disparities for COVID-19 outcomes in multiple countries, whether for health workers or the general population. Research from the United States showed that of 39

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states, 33 reported a higher incidence of COVID-19-related deaths in Black Americans and 9 states reported a higher incidence of death in Asian Americans (1). Of all U.K. COVID-19-positive intensive care patients, 14% were Asian and 12% African-Caribbean, respectively; a substantial percentage considering that the United Kingdom's total ethnic non-White population of 13%. Similarly, despite making up 20% of the National Health Service (NHS) workforce, 64% of COVID-19 deaths in NHS staff have been in ethnically diverse individuals. Underlying reasons for increased risk of infection and mortality in racially ethnically diverse individuals may be due to biological, structural, and behavioral factors (6).

BIOLOGICAL FACTORS. In a sample of 100,000 individuals in the United Kingdom, Black, Asian, and White people had 17.3%, 11.9%, and 5.0% prevalence of antibodies for SARS-CoV-2, respectively (9). Cardiometabolic diseases have been identified as risk factors for serious COVID-19 infection, and prevalence of type 2 diabetes and hypertension is higher within non-White individuals (7). Increased infection risk in non-White individuals may reflect increased rates underlying cardiovascular risk factors and conditions.

STRUCTURAL. As well as overcrowding (e.g., in the United Kingdom, 30% of Bangladeshi and 15% of African households are overcrowded, compared with 2% of White British households), multigenerational households and poor access to health care in ethnic minorities are likely to be contributory factors. Despite increased disease burden within non-White populations, they are under-represented or excluded from clinical trials and research, as well as from health initiatives and policies for pandemic planning and preparedness (6).

BEHAVIORAL. Institutionalized racism and bias can erode the level of trust and confidence racially and ethnically diverse groups have in the health service, making certain groups less likely to seek help. Language barriers commonly impact communication with health care professionals and care pathways at every level. There is recent evidence of lower uptake of COVID-19 vaccination in non-White communities. In data gathered from a U.K. survey about the COVID-19 vaccine, 71.8% of Black British respondents were found to be vaccine-hesitant, followed by 42.3% of Pakistani/Bangladeshi groups. Older adults in the United Kingdom from 9 of the 17 (52.9%) non-White groups have reported worse primary care experiences compared with white British groups (8). High-risk individuals in racially and ethnically diverse individuals are more likely to be “key”

workers, on zero-hour contracts, and use public transport, and are less likely to complain about lack of personal protective equipment (6).

INCREASED COVID-19 RISK FOR CANCER AND CVD PATIENTS

In the context of COVID-19, cancer and CVD convey increased COVID-19 mortality risk. Higher SARS-CoV-2 infection rates were observed in cancer patients compared with the general population. In the United Kingdom, patients with leukemia, lymphoma, and myeloma had the highest increased risk of SARS-CoV-2 infection and a higher risk of severe symptoms compared with other cancer patients (9).

Underlying cardiovascular disease has been associated with severe symptoms following SARS-CoV-2 infection. A meta-analysis showed a 3-fold increase in risk of severe COVID-19 symptoms in patients with CVD (10). Infection rates for overlapping cancer and CVD by ethnicity are unknown, but need to be urgently investigated.

TACKLING ETHNIC DISPARITIES IN CANCER AND CVD: LESSONS TO BE LEARNED FROM COVID-19

COVID-19 has highlighted the differences in clinical outcomes in certain populations, and there is lack of high-quality research to understand the root causes. As a result, there has been strategic governmental prioritization of both issues, providing unique opportunities to translate results into other disciplines including cancer and CVD. For example, there have been targeted health education and implementation campaigns around workplace risk assessment and vaccination, and specific research funding calls relating to addressing ethnic health inequalities and COVID-19.

We propose the following roadmap. First, there is growing recognition of the need to ensure appropriate representation of diverse populations in research (whether basic science, epidemiology, or clinical trials) to better understand disease mechanisms, impact, and differential responses to treatments. More detailed study of diverse populations will also minimize the risk of biological and sociological insights being missed (6). Second, for different factors to be studied by race and ethnic groups, complete and standardized recording of race and ethnicity in electronic health records is required.

Third, renewed attention on education, public health, screening, and preventative medicine including vaccination will provide fresh opportunities for focusing on CVD prevention, important for

health promotion and cross-disease strategies in cancer patients. COVID-19 has dramatically changed the way that health care is delivered. Excess mortality in patients with comorbidities (particularly cancer and CVD) seen with COVID-19 has stimulated better cross-disciplinary health care provision—a fundamental aspect of cardio-oncology. Finally, disproportionate COVID-19 impact in certain populations has underlined the need for inclusion and engagement of these communities in shaping health care delivery. Traditional clinic consultations are now increasingly supported by telehealth. For patients who may have previously struggled with accessing health care due to challenges with transport, taking time off work, and need for family members to accompany them for language translation, this facilitates engagement, but gaps in health and digital literacy still need to be considered.

CONCLUSIONS

The pandemic has shown that the same racial and ethnic groups vulnerable to cancer and CVD are also vulnerable to serious illness with SARS-CoV-2 infection, unmasking the urgent need for research and action. Cancer and CVD, as common diseases with well-documented racial and ethnic inequities, represent opportunities to understand the overlap

between diseases, risk factors, and ethnicity before and during the pandemic. Until now, our approach has been siloed at best, intersections between behavioral, structural, and biological factors necessitate cross-disciplinary solutions. COVID-19 has stimulated clinical and academic practice to tackle inequities with more patient-centered and evidence-based approaches, creating more specific recommendations. As cancer, CVD, and their overlap represent an exemplar to study the effects and implications of COVID-19 across diseases and groups, we recommend further urgent research into multimorbid, multiracial, and multiethnic populations.

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REFERENCES

1. Sze S, Pan D, Nevill CR, et al. Ethnicity and clinical outcomes in COVID-19: a systematic review and meta-analysis. *EClinicalMedicine* 2020; 29-30:100630.
2. Lloyd T, Hounscome L, Mehay A, Mee S, Verne J, Cooper A. Lifetime risk of being diagnosed with, or dying from, prostate cancer by major ethnic group in England 2008-2010. *BMC Med* 2015;13:171.
3. Møller H, Henson K, Lüchtenborg M, et al. Short-term breast cancer survival in relation to ethnicity, stage, grade and receptor status: national cohort study in England. *Br J Cancer* 2016; 115:1408-15.
4. Cainzos-Achirica M, Fedeli U, Sattar N, et al. Epidemiology, risk factors, and opportunities for prevention of cardiovascular disease in individuals of South Asian ethnicity living in Europe. *Atherosclerosis* 2019;286:105-13.
5. Knowles RL, Ridout D, Crowe S, et al. Ethnic-specific mortality of infants undergoing congenital heart surgery in England and Wales. *Arch Dis Child* 2019;104:844-50.
6. South Asian Health Foundation. COVID-19 in Black, Asian and Minority Ethnic populations: an evidence review and recommendations from the South Asian Health Foundation. South Asian Health Foundation, 2020. Available at: https://static1.squarespace.com/static/5944e54ab3db2b94bb077ceb/t/5f059972f6680542c546897f/1594202487799/Covid19_SAHF_Final+for+Release.pdf. Accessed March 15, 2021.
7. Mathur R, Rentsch CT, Morton C, et al., for the OpenSAFELY Collaborative. Ethnic differences in COVID-19 infection, hospitalisation, and mortality: an OpenSAFELY analysis of 17 million adults in England. *medRxiv* September 23, 2020. Available at: <https://www.medrxiv.org/content/10.1101/2020.09.22.20198754v1>. Accessed March 15, 2021.
8. Watkinson RE, Sutton M, Turner AJ. Ethnic inequalities in health-related quality of life among older adults in England: secondary analysis of a national cross-sectional survey. *Lancet Public Health* 2021;6:e145-54.
9. Lee LY, Cazier JB, Starkey T, et al. COVID-19 prevalence and mortality in patients with cancer and the effect of primary tumour subtype and patient demographics: a prospective cohort study. *Lancet Oncol* 2020;21:1309-16.
10. Addison D, Campbell CM, Guha A, Ghosh AK, Dent SF, Jneid H. Cardio-oncology in the era of the COVID-19 pandemic and beyond. *J Am Heart Assoc* 2020;9:e017787.

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