Social Determinants of Health in Cardiovascular Disease: A Call to Action

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Medicine is a social science, and politics is nothing else but medicine on a large scale.

— Rudolf Virchow

As health care providers, we focus on preventing cardiovascular diseases before they occur, managing hospitalized patients with guideline-directed medical therapy, or performing interventional or surgical interventions. Although these encounters are intended to provide the best care for each patient and optimize their outcomes, suboptimal outcomes continue to exist, often because of the upstream and downstream effects of social determinants of health. In this special issue of the Canadian Journal of Cardiology, authors from across the globe share their insights in 20 articles. The main intention is to improve our understanding of the importance of social determinants of health, identify gaps in knowledge, provide research method considerations, discuss their impact on different populations and disease domains, and propose potential ways to improve health disparities.

Social determinants of health are defined by the World Health Organization as nonmedical conditions that influence health outcomes, affecting the situation or circumstances in which individuals are born, grow, live and age.1 The United States Department of Health and Human Services has categorized social determinants of health into 5 major domains: economic stability, education access and quality, neighbourhood and built environment, social and community context, and health care access and quality.2 The government of Canada broadly classified determinants of health into 12 areas: income and social status, employment and working conditions, education and literacy, childhood experiences, physical environments, social supports and coping skills, healthy behaviours, access to health services, biology and genetic endowment, gender, culture, and race/racism.3 In this special issue of the Canadian Journal of Cardiology, social determinants of health are acknowledged as the primary driver of health equity and outcomes, in contrast to a traditional clinical framework that focuses on biological and genetic factors.

Such recognition has been reignited by the COVID-19 pandemic, which exposed not only the vulnerabilities of our health care system but also the unequal impact of the disease on poorer populations and ethnic minorities worldwide. For example, the Centers for Disease Control and Prevention and US Census Bureau found that Black and Latino persons had twice the mortality rates from COVID-19 and non-COVID-19 causes compared with White people.4 Although there is a paucity of comprehensive data regarding race and ethnicity in Canada, researchers have still identified a more than 2-fold higher death rate in neighbourhoods with the highest proportion of ethnic minorities.5

Improve Understanding of Social Determinants of Health

Given the multidimensional nature of social determinants of health, Vyas et al.6 asked whether a best metric exists that could be used in studies on cardiovascular disease. In a systematic review of 47 studies on cardiac procedures and surgeries, the authors concluded that social determinants of health (SDOH) have been defined in a heterogeneous fashion. Despite that, each included study showed an adverse association of social determinants of health with patient outcomes.7 Alter et al.7 further pointed out that most...
scientific studies on social determinants of health evaluated these measures at a single point in time. In fact, important determinants such as socioeconomic status, social capital, social stressors, and social context may change throughout the life course for a variety of reasons. One such example is the evaluation of wealth shock, defined as a loss of 75% or more of total net worth over a 2-year period, in which investigators found a strong association with premature mortality to the extent that the adverse effect was similar to those who were consistently living at a poverty level.9

Cross-country studies have enabled the identification of best practices and learning from successful health systems around the world. In this study by Akioyamen et al.,7 the authors attempted to understand how treatment and outcomes differ among patients according to socioeconomic status across countries. Finally, Kaufman10 provided a comprehensive review of the definitions and measures used in studies of social determinants of cardiovascular health. The author also discussed the importance of causal inference, which is typically defined as the process of determining whether a cause-and-effect relationship exists among variables.10 This is of particular importance in the study of the SDOH, as randomized experiments are almost never possible, and scientific inferences must be derived from nonexperimental study designs.

**SDOH in Different Domains**

Estimates suggest that more than 65 million people around the world are suffering from long COVID.3 In this review, Banerjee12 provided a detailed framework of health disparities in the development, management, and prevention of COVID-19 and long COVID. The article also discussed interventions needed to targeting social determinants of health at individual, community, and policy levels that will lay the foundation for the future.

Several articles in this issue discussed the impact of social determinants of health on those undergoing life-stage transitions. Cabrera Fernandez et al.13 discussed the impact of social determinants of health on patients transitioning from pediatric to adult cardiology care, Mehta et al.14 on maternal cardiovascular health, and Mohamed et al.15 on patients with cancer and acute coronary syndrome. In an attempt to understand the reason why patients with lower socioeconomic status have lower survival rates after out-of-hospital cardiac arrest, Grubic et al.16 performed a systematic review to understand the mediators of these poorer outcomes. They found that as the socioeconomic status of patients who suffered cardiac arrest worsened, so did the chance of receiving bystander resuscitation, having a witnessed arrest, and consequently a shockable rhythm.16

Despite Canada’s universal health care system, a seminal paper by Alter and colleagues17 in the 1990s found socioeconomic status has pronounced effects on access to specialized cardiac services after an acute myocardial infarction. Hoagland et al.18 provided a new perspective and explored the tension and challenges in our health care system with scarce resources and the need to balance the dissemination of novel improving innovation and ensuring equitable access to health care.

**Health Disparities in Women and Cardiovascular Diseases**

Although significant improvements have been made for the diagnosis, treatment, and outcomes of cardiovascular disease in women, Kaur et al.19 provided a comprehensive summary on existing data and suggested that additional efforts that are needed to ameliorate the residual sex differences. They discussed the role of social determinants of health at the provider level and the health care system level that adversely affects the cardiovascular health of women. A detailed discussion was also conducted on specific populations, such as those with disabilities, transgender individuals, South Asian patients, and Indigenous populations.19 Zhou et al.20 performed a narrative review focusing on the sex-specific associations among various socioeconomic determinants and the incidence, treatment, and outcome of atrial fibrillation.

**Race and Ethnicity and Cardiovascular Diseases**

Race is commonly defined in Canada as a social construct that categorizes individuals based on perceived physical differences, and ethnicity refers to cultural group membership, which may be related to language, religious beliefs, geographic region, and other factors.21 Deb et al.21 highlighted the important observation that Canada lacks population data regarding race and ethnicity in health care settings. The lack of data has impeded progress in understanding the influence of race and ethnicity on health inequality. The authors also challenged us with directions for future improvements. Ali et al.27 provided a review on the effect of race and ethnicity in the primary prevention of cardiovascular disease. The comprehensive review detailed evaluations of race and ethnicity on modified risk factors such as physical activity, hypertension, diet, smoking, and diabetes. The authors also provide insights on the use of polypills as an intervention and discuss the need for collection of data for quality improvement.22

**Immigrants, Geographic Remoteness, and Cardiovascular Disease**

Immigration to developed countries is increasing rapidly because of economic, political, and social reasons. Canada has one of the most inclusive immigration policies globally. In 2023, there were 470,000 new immigrants to Canada, and nearly 1 in 4 Canadians was born outside of the country.23 Vyas et al.25 provided a comprehensive review on the Canadian policies on accepting immigrants and refugees and detailed their association with cardiovascular risk factors and common cardiovascular conditions. They also cautioned that the commonly known healthy immigrant effect may be driven by immigration policies that favoured entry of skilled and educated individuals in the economic stream, and it may not be applicable to those who are socioeconomically disadvantaged.25 Canada is one of the lowest population-density countries in the world. Eckersley24 discussed the challenges faced by our health care system because of geographic remoteness and the need for innovation in health service delivery, policy, and technology.
Additional Considerations to Mitigate the Impact of SDOH

The rapid increase in population growth in Canada has not been paralleled by the same increase in physician workforce. Vervoort et al. brought the access to cardiac surgeons in Canada to our attention. In another paper, Vervoort et al. also gave an introduction on the process of health technology assessment that focuses on cost effectiveness of treatment. A conceptual framework is provided that incorporates domains of social determinants of health that may improve health equity in the future.

Houle et al. discussed the potential role of social prescribing. It is a new type of intervention that links health and social services in the community for the benefit of vulnerable populations and has been adopted in other countries for addressing social determinants of health. Finally, Marchand et al. discussed the observation that indigenous communities have significantly higher rates of cardiovascular risk factors, morbidity, and mortality. They reviewed the existing data and provide ways that cardiac rehabilitation can be culturally adapted to benefit the indigenous communities.

We hope the articles in this series in the Canadian Journal of Cardiology will improve the understanding of the importance of social determinants of health in optimizing the quality of care and outcomes of our cardiovascular patients and lead to prioritization, innovation, and intervention in this area. We also hope that it will serve as a reminder that all of us need to advocate for health equity, committing to a brighter future for those who are disadvantaged, and to support policies that will eliminate inequalities in access to health care in the future.

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References


