



Editorial

Bringing Intersectionality to Cardiovascular Health Research in Canada

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Cardiovascular disease (CVD) affects various subgroups of the population; some are disproportionately affected more than others.^{1,2} Besides genetic and clinical factors, an important set of social factors intersect to shape our cardiovascular health outcomes. Disparities in CVD are numerous and wide-ranging, having evolved mainly from inequalities in society. Some populations carry a higher risk of CVDs, a higher prevalence of CVDs, and worse outcomes with CVDs.

Race, immigration status, sex, gender, and sexual orientation are some examples of the social factors that can determine not only our risk of heart disease but also our responses to therapies and our access to services.^{3–6} These factors compound existing health inequities, but they are less isolated factors than they are intersecting factors. Consequently, an understanding of how this *intersectionality* influences cardiovascular health outcomes is now key.

Therefore, this paper calls for bringing an intersectionality lens to cardiovascular health research, which eventually would enable us to practice intersectionality-based cardiovascular medicine.

What Is Intersectionality?

Intersectionality acknowledges the various identities that each of us carries, and how these identities intersect to bring about either oppression or privilege.^{7,8} As individuals, we are known socially by our identities, such as age, gender, sexual orientation, race/ethnicity, religion, social class, immigration status, and place of residence (rural/urban). Each of these identities can put us in a position of relative power or

disadvantage; however, practically, each of these identities can also interact with other factors, thus reinforcing and compounding privilege, discrimination, and inequities.⁸ As examples of intersectionality, consider elderly rural women, an immigrant of South Asian descent, or a Black lesbian. These intersecting identities not only define us socially, but also have a lot to do with our health behaviours, and our physiological and psychosocial health, all of which contribute to our risk of acquiring and the outcomes of various diseases. CVD is no exception. About 90% of the risk of myocardial infarction comes from the 9 risk factors that are closely linked to our health behaviours,⁹ and a wide range of factors influence health services usage.¹⁰ For instance, older women with heart failure living in rural areas are less likely to follow self-care recommendations¹¹; South-Asian immigrants have both an increased prevalence and an increased death rate from coronary artery disease¹²; and Black lesbian women tend to have a higher prevalence of cardiometabolic risk factors.¹³

Despite the fact that such intersecting factors can influence the incidence and treatment of CVD, intersectionality largely has been ignored in cardiovascular health research in Canada and globally, to date. Some studies have examined the intersection of race/ethnicity and sexual orientation and the contributions it makes toward developing the risk of CVD.^{13,14} Some studies have looked at the intersection of income and work status with the place of residence (rural/urban) and how it shapes self-care in heart failure.^{15,16} However, the vast majority of studies of cardiovascular health focus on singular factors and their impact on patient outcomes, leaving intersectionality and its effects unexplored and unacknowledged.

Why Is Intersectionality Important for Exploration of the Cardiovascular Health of Canadians?

The neglect of intersectionality in Canadian CVD research is notable because the Canadian population is immensely diverse—with unusually high cultural and gender diversity,

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along with significant rurality and indigeneity.¹⁷ Canada has accordingly come to be known as a land of immigrants and multiculturalism. Each year, Canada welcomes around 300,000 new immigrants of varied ethnic backgrounds. These individuals come from South Asia, South East Asia, the Middle East, the US, Africa, and Europe; they speak hundreds of different languages and bring with them their own unique cultures.¹⁸ In terms of gender diversity, about 900,000 Canadians described themselves as either lesbian, gay, or bisexual in the Canadian Community Health Survey (2015-2018), which is about 3.3% of the total Canadian population aged 15 years or more.¹⁹ Moreover, the Canadian population is a mix of people living in rural and urban areas, and of various social classes. Per 2019 statistics, about 19% of Canadians live in rural remote areas, where access to healthcare is a major issue.²⁰ Additionally, about 4% of Canadians identify themselves as Aboriginal or indigenous.²¹ This unusually high diversity within the Canadian population is also reflected among the Canadian cardiovascular patient populations. Therefore, it is extremely important to explore the effects of intersectionality on cardiovascular care and outcomes, especially in the Canadian context.

Why Is Intersectionality Important for Cardiovascular Health Research?

Cardiovascular health research is broad; it explores the prevalence and outcomes of CVDs, determines the efficacy of various treatment modalities, and examines self-care and disease management for chronic cardiac conditions, and the lived experiences of cardiovascular patients and caregivers. For each of these outcomes, several intersections of identities could be explored, which would result in generation of specific findings about the treatment/intervention or disease management program that is best suited to improve outcomes among specific populations of cardiovascular patients (see Table 1 for some examples of intersectionality-based cardiovascular research questions, outcome measures, and the intersections of identities explored).

Intersectionality applies everywhere. As much as it is imperative to account for intersectionality while

predicting risks and outcomes of CVD and determining efficacy of treatments for specific patient groups, it is equally important to study health behaviours, self-care abilities, and lived experiences through an intersectionality lens.

Based on the type of outcome to be explored, the research methods can vary. Intersectionality embraces a broad range of research methods. For instance, epidemiologic studies could be conducted to determine risks, prevalence, and outcomes of CVD among various subgroups of the population that have intersecting factors affecting their cardiovascular health. Intersectionality-based interventional research can be carried out as a means to delineate the effectiveness of treatment modalities for various subgroups of cardiovascular patients. Mixed-methods research can be performed to explore self-care abilities and disease management among cardiac patients with intersecting identities. Lastly, intersectionality-based qualitative research could be undertaken to understand the experiences or perceptions of various subgroups of cardiac patients and their caregivers relating to living with and managing their condition. Important to note is that there is a stark need to move beyond what can be inferred from traditional cardiovascular research methods and more toward implementation of informative and inclusive interventions designed to address patient needs.

In What Ways Can Intersectionality Be Applied to Cardiovascular Health Research?

Intersectionality can be applied to cardiovascular health research in many different ways and at various levels. Intersectionality can be fully integrated through a research project, which means recognizing that the research is underpinned by the intersectionality theory, and subsequently weaving in intersectionality through each stage of the research. Alternatively, intersectionality could be applied at some or all of the stages of the research process (please see Fig. 1 for integration of intersectionality at various stages of the research process).

Even if the research is not entirely grounded in intersectionality theory, the influence of patients' intersecting identities on a specific cardiovascular health outcome can be

Table 1. Examples of intersectionality-based cardiovascular research questions with intersections of identities explored and outcome measures

Subject #	Examples of intersectionality-based cardiovascular research questions	Intersections of identities explored	Outcome measures
1	How effective is aspirin in preventing myocardial infarction in Black lesbian women?	Ethnicity, gender, sex	Effectiveness of treatment modality (aspirin)
2	How accessible, relevant, and effective are heart failure disease management programs for elderly rural women in Canada?	Rurality, age, place of residence	Accessibility, relevance, and effectiveness of heart failure disease management programs
3	What are the risk factors associated with coronary artery disease among Black transgender men in urban settings?	Race/ethnicity, gender, place of residence	Risk factors of coronary artery disease
4	What are the clinical outcomes after angioplasty among middle-class Caucasian urban-dwelling women?	Social class, race, place of residence, gender	Clinical outcomes after angioplasty
5	What is the compliance with statin prescriptions among retired older men with cardiovascular disease who do not have employer-provided insurance coverage?	Employment status, age, gender, insurance coverage	Compliance with treatment modality (statins)
6	What is the prevalence of ST-elevation myocardial infarction among labor-class Latino men?	Social class, race, gender	Prevalence of ST-elevation myocardial infarction
7	How frequently are immigrant women of South Asian descent referred to a cardiac rehabilitation program?	Ethnicity, sex, immigration status	Access to cardiac rehabilitation services
8	What are the lived experiences of interactions with cardiologists in bisexual Hispanic men?	Sexual orientation, ethnicity, gender	Lived experiences of interactions with cardiologists

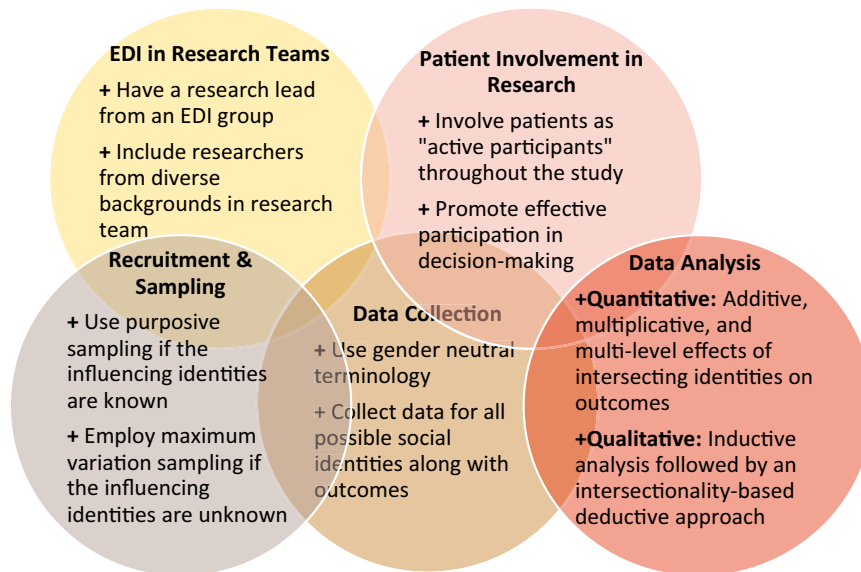


Figure 1. Steps for integrating intersectionality into cardiovascular health research. EDI, Equity, Diversity, and Inclusion.

examined (see [Table 1](#) for some examples of intersectionality-based cardiovascular health research questions).

Research priorities are often significantly affected by funding agencies' mandates and government-based incentives.²² This effect holds true for intersectionality-based research in CVD as well, with the impact that the potential for intersectional research in cardiology is greater when funding agencies call for including diverse patients and research team members, and when there are dedicated incentives for researchers who are promoting intersectionality-based research.²³

Equity, Diversity, and Inclusion Representation in the Composition and Leadership of Research Teams

Increasing the diversity of a research team is one way to promote intersectional research in cardiovascular health and disease.²³ Having a lead researcher who is from an Equity, Diversity, and Inclusion group, as well as having research team members from diverse backgrounds, promotes rigorous research in the area of health disparities, as each team member brings to the work a unique and personalized understanding of health inequities.

Patient and Public Involvement in Research

Intersectionality-based research can benefit greatly from patient and public involvement.²⁴ Patient engagement, especially of those with relevant intersecting identities, right from the beginning stage of research question formulation and research planning, is essential to ensure that we address the research questions that are relevant to these patients and their communities.²⁴

Cardiovascular health research needs patient-partnered interventions, involving patients as active participants so that intersecting identities can be explored through promotion

of participation in decision-making, including input into choices and preferences about their care, and opportunities to explore and understand the impacts of various intersecting identities on outcomes.²⁴ Only through targeted interventions that proactively involve participants and aim to increase awareness of intersectionality and its impacts can we start to deliver appropriate, acceptable, and equitable care to all.

Recruitment and Sampling

Recruitment and sampling are significant steps in research, and in which intersectionality can be applied. If the intersecting identities influencing the outcome(s) of interest are already known, a purposive sampling strategy could be employed to include participants with the relevant intersecting identities.²⁵ If the exploration is being done for the first time in a particular area and the researcher is completely unaware of the possible intersecting identities that might be relevant, then a maximum variation sample works the best—that is, recruiting a wide range of patients with various intersecting factors.²⁶ Moreover, participant-driven snowball sampling is a great resource for intersectionality-based research and is particularly useful for recruiting participants with stigmatized identities that they do not reveal widely, as a means to try to prevent discrimination.²⁵

Data Collection

Data collection is that phase of cardiovascular health research that requires careful consideration of the participants' intersecting identities, and being respectful of the same. Such an approach includes consideration of gender-neutral terminology, providing all possible options for gender identity (man, woman, lesbian, gay, bisexual, transgender, queer, two-spirited), ensuring that the participants have the option to indicate all of their social identities as part of the socio-demographic data (age, sex, gender, social class, race,

ethnicity, immigration status, place of residence—rural/urban), asking them via open- or close-ended questions how their social identities affect the outcome or phenomenon of interest.

Data Analysis

Intersectionality can be thoroughly applied while analyzing research data, in the case of either quantitative or qualitative analysis. There are intersectionality-based quantitative analytical tools available, such as multiple main effects, statistical interactions, and multilevel modelling, that explore the additive, multiplicative, and multilevel effects of intersecting identities on cardiovascular outcomes, respectively.²⁷ Else-Quest and Hyde provide an excellent account of how these analyses can be applied to intersectionality-based quantitative research.²⁷ For intersectionality-informed qualitative analysis, certain frameworks have been proposed. For example, Bowleg proposed open, axial, and selective coding to reflect participants' intersectional experiences.²⁸ Similarly, Bilge has proposed performing an inductive thematic analysis followed by applying an intersectionality-informed deductive approach.²⁹ Important to note is that whatever the targeted methods, we need to ensure that these are far-reaching and sustainable.

Conclusions

Given the increasing diversity of the Canadian cardiovascular patient population, we need to investigate the influence of intersectionality on cardiovascular health outcomes, and explore it via research. Intersectionality-driven cardiovascular research has the potential to revolutionize cardiovascular clinical practice, and improve outcomes.

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