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Bringing Intersectionality to Cardiovascular Health Research in Canada

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Title Page

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Bringing Intersectionality to Cardiovascular Health Research in Canada

Introduction:

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

Race, immigration status, sex, gender, and sexual orientation are some examples of the social identities that not only can determine our risk of heart disease but also responses to therapies, access to services (3-6). These factors compound existing health inequities – but exist less in isolation than intersection. Consequently, it is now key to understand how this *intersectionality* influences cardiovascular health outcomes.

Therefore, this paper calls for bringing intersectionality to cardiovascular health research, which would eventually 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 socially known by our identities, such as our: age, gender, sexual orientation, race/ethnicity, religion, social class, immigration status, place of residence (rural/ urban) etc. 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). To exemplify intersectionality, consider elderly rural women, an immigrant of South Asian descent, or a black lesbian woman. These intersecting identities not only define us socially, but these also have a lot to do with our health behaviors, our physiological and psychosocial health: all of which contribute to our risk and outcomes of various diseases. CVD is no exception. About 90 % of the risk of myocardial infarction comes from the nine risk factors that are closely linked to our health behaviors (9), and a wide range of factors influence health services usage (10). For instance, older women with heart failure (HF) living in rural areas are less likely to follow self-care recommendations (11), or South-Asian immigrants have both increased prevalence and death rate from coronary artery disease (12), or Black lesbian women tend to have higher prevalence of cardiometabolic risk factors (13).

Despite the fact that such intersecting factors can influence the incidence and treatment of CVD, intersectionality has been largely 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 towards developing

the risk of cardiovascular disease (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 HF (15, 16). However, in the vast majority, studies in cardiovascular health focus on singular factors and their impact on the patient outcomes- leaving both intersectionality and its effects unexplored and unacknowledged.

Why is intersectionality important for exploration of 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, along with significant rurality and indigeneity (17). Canada has accordingly come to be known as a land of immigrants and multi-culturalism. 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, USA, 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 as per the Canadian Community Health Survey (2015-2018), which is about 3.3% of the total Canadian population aged 15 or above (19). Moreover, Canadian population is a mix of people living in rural and urban areas, and people from various social classes. As per 2019 statistics, about 19% of Canadians live in rural remote areas, where access to healthcare is a major issue (20). Additionally, about four percent of Canadians identify themselves as Aboriginal or indigenous (21). This unusually high diversity of Canadian population is also reflected among the Canadian cardiovascular patient populations. Therefore, it becomes 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, as well as self-care and disease management of 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 around which treatment/intervention or disease management program (DMP) is better suited to improve outcomes among which specific population 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 for determining efficacy of treatments for specific patient groups, it is equally important to study health behaviors, 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, epidemiological studies could be conducted to determine risks, prevalence, and outcomes of CVD among various sub-groups of population that have intersecting factors affecting their cardiovascular health. Intersectionality-based interventional research can be carried out attempting to delineate the effectiveness of treatment modalities for various sub-groups of cardiovascular patients. Mixed methods research can be performed to explore the 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 sub-groups of cardiac patients and their caregivers around living with and managing their condition. Importantly, there is a stark need to move beyond what can be inferred from traditional cardiovascular research methods and more toward implementation of interventions designed to address the patient needs that are informative and inclusive.

Table 1: Examples of Intersectionality-based Cardiovascular Research Questions with Intersections of Identities Explored and Outcome Measures

S.No.	Examples of intersectionality-based cardiovascular research questions	Intersections of identities explored	Outcome measures
1.	How effective is Aspirin in preventing myocardial infarction (MI) in Black Lesbian women?	Ethnicity, Gender, Sex	Effectiveness of treatment modality (Aspirin)
2.	How accessible, relevant and effective are HF disease management programs for elderly rural women in Canada?	Rurality, Age, Place of residence	Accessibility, relevance, and effectiveness of HF 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 statins among retired older men with	Employment status, Age, Gender,	Compliance with treatment

	cardiovascular disease who do not have employer provided insurance coverage?	Insurance coverage	modality (Statins)
6.	What is the prevalence of ST elevation MI among labor-class Latino men?	Social class, Race, Gender	Prevalence of ST elevation MI
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

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. This 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 also be applied at some or all of the 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 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 is true for intersectionality-based research in cardiovascular disease as well, such that, there is more potential for intersectional research in cardiology upon funding agencies' calls for including diverse patients and research team members, and dedicated incentives for researchers promoting intersectionality-based research (23).

EDI Representation in the Composition and Leadership of Research Teams

Increasing the diversity of research team is one way to promote intersectional research in cardiovascular health and disease (23). Having a research lead from an EDI group, as well as having research team from diverse backgrounds promotes rigorous research

in the area of health disparities, as each team member brings in a unique and personalized understanding of health inequities.

Patient and Public Involvement in Research

Intersectionality-based research can benefit a lot from patient and public involvement (24). Patient engagement, especially those with relevant intersecting identities, right from the 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' where intersecting identities can be explored through promoting participation in decision-making, including 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 just care to all.

Recruitment and Sampling

Recruitment and sampling are significant steps of the research 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 purposefully include participants with the relevant intersecting identities (25). If the exploration is being done 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, recruiting a wide range of patients with various intersecting factors (26). Moreover, participant-driven snowball sampling is a great resource for intersectionality-based research, which is particularly useful for recruiting participants with stigmatized identities that they do not reveal widely, in an attempt to prevent discrimination (25).

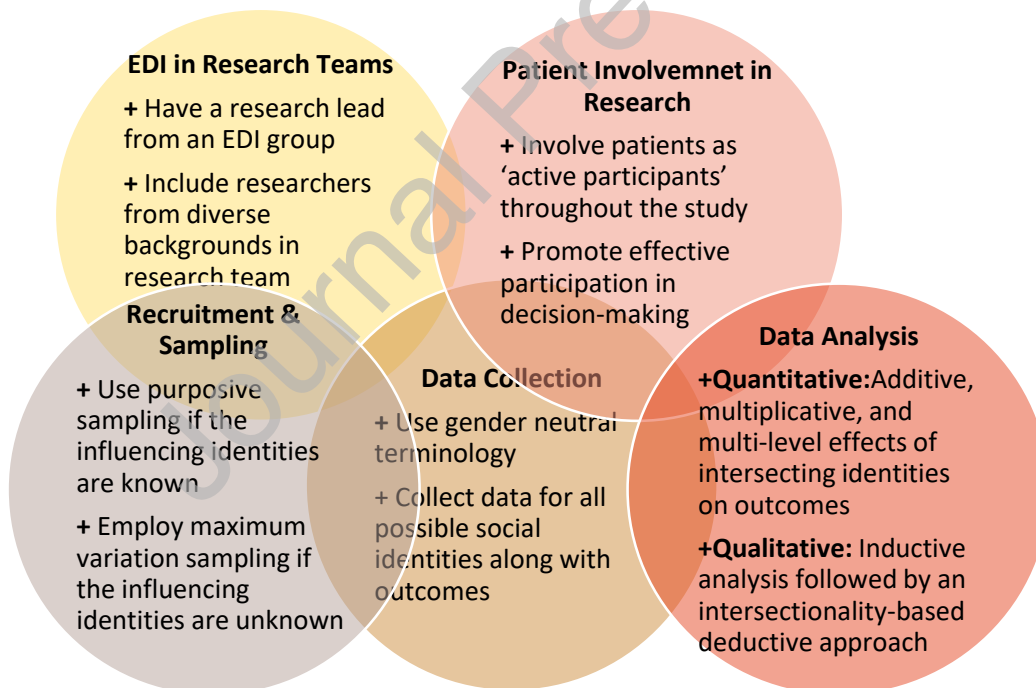
Data Collection

Data collection is that phase of cardiovascular health research, which requires a careful consideration of the participants' intersecting identities, and being respectful of those. This includes consideration of gender neutral terminology, providing all possible options to choose their gender from (men, women, lesbian, gay, bisexual, transgender, queer, two-spirited), ensuring that the participants have the option to indicate to 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 closed ended questions as to how their social identities affect the outcome or phenomenon of interest.

Data Analysis

Intersectionality can be thoroughly applied while analyzing research data, in case of both quantitative and qualitative analyses. There are intersectionality-based quantitative analytical tools available such as multiple main effects, statistical interactions, and multi-level modeling, that explore the additive, multiplicative, and multi-level effects of intersecting identities on the 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, such as, Bowleg (2008) proposed open, axial, and selective coding to reflect participants' intersectional experiences (28). Similarly, Bilge (2009) has proposed an inductive thematic analysis followed by an intersectionality-informed deductive approach (29). Importantly, whatever the targeted methods, we need to ensure that these are far reaching and sustainable.

Figure 1: Steps for Integrating Intersectionality in Cardiovascular Health Research



Conclusion:

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

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