Exploring Paradoxical Advantages of Latin Americans in Canada:

Secondary Analytic Expositions of Contextualized Resiliencies and Vulnerabilities

By

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ABSTRACT

The United States (US) has an extensive body of literature on racial health disparities, highlighting the significant impact of race as a social determinant of health. There is a limited amount of research on health inequalities in Canada. Of particular interest is the Latin American population, one of the fastest growing ethnic minority groups in Canada and the US. Literature on Latin American health and mental health indicates significant advantages in diverse morbidity and overall mortality, despite significant risk factors associated with lower socioeconomic status, low educational attainment, and discrimination. The Hispanic Health Paradox (HHP) suggests that Latin Americans and their culture may possess certain protective factors that mitigate the negative impact of lower socioeconomic status on health and mental health (Markides, 1983).

This dissertation aims to examine the existence of the HHP in a Canadian sample using secondary data from four cycles of the Canadian Community Health Survey (2015 to 2018). Two hypotheses were tested 1) The HHP will appear in Latin Americans in Canada as demonstrated by their equal to or better than expected health and mental health outcomes and by lower health care utilization compared to non-Latin American whites (NLAW) and other racialized groups across ten outcomes: self-rated health, cancer, heart disease, diabetes, hypertension, self-rated mental health, anxiety disorder, mood disorder, health care including mental health care utilization; 2) Latin American ethnicity will interact with gender, age, income, education, and immigration to potentiate the protections afforded men, older individuals, those with low incomes, those with low education, and those who have most recently emigrated to Canada. These were systematically replicated across the same 10 measures listed under Hypothesis 1. Multivariate logistic regression analyses were conducted with the following samples: Latin Americans (1,799), NLAW (168,225), and other racialized groups (33,730).

Results found that the first hypothesis was supported across all ten outcomes meaning that Latin Americans had equal or better than expected odds of health, mental health, and health care compared to NLAW. This was also true in most outcomes when compared to other racialized groups. Much supportive evidence was also found regarding important interactions across all ten outcomes, indicating that Latin Americans are not a homogenous people. Of the 50 interactions tested, 35 were statistically significant, 33 providing at least some evidence in the hypothesized direction, and of these 12 provided strong, unequivocal support. The strongest and most significant support for the Latin American health paradox in Canada was found among those who most recently emigrated to Canada and among those with relatively low incomes.

The results from the present study can be used to expand our current knowledge of Latin American health, mental health, and health care utilization beyond the US. Moreover, it can be used to improve our understanding of the inter and intragroup differences of Latin American people—one of the fastest growing minority groups in North America. The findings of this study can contribute to our understanding of Latin American health, mental health, and healthcare utilization in Canada and beyond. These results may also help us better understand the diversity within the Latin American population, which is one of the fastest growing minority groups in North America. As social workers are increasingly responsible for providing services to a diverse population, it is important to have a comprehensive understanding of the unique challenges and strengths of different groups. Further, with the increased demand of providing empirically supported services to a growing diverse population, this field's competency will remain limited as long as knowledge and intervention methods rely solely on research done with the mainstream groups and cultures. Thus, this study highlights the importance of expanding our knowledge and intervention methods beyond the mainstream culture to better serve minority populations.

DEDICATION

Dedicated to all Latin Americans who left their homes in search of a better life for their children.

Para todos los Latinoamericanos que dejaron su tierra para darle a sus hijos una mejor vida.

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They say that a journey of a thousand miles begins with a single step. If so, then the encouragement and support sowed by countless unsung heroes were the steppingstones that paved my path. They provided me with the strength and determination to finish this work.

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LIST OF ABBREVIATIONS

Abbreviation	**Full Text**
CCHS	Canadian Community Health Survey
HME	Healthy Migrant Effect
HHP	Hispanic Health Paradox
NLAW	Non-Latin American White
RDC	Research Data Centre
US	United States

Chapter I: Introduction

Immigrants in Canada

Canada is a country of immigrants and culturally diverse peoples. This nation's immense pool of human capital is largely driven by its immigration policies, which have fostered an ethnically, culturally, and linguistically diverse population. Since Confederation in 1867, more than 17 million immigrants have come to call Canada home (Statistics Canada, 2018). According to most recent data, the foreign-born population in Canada is approximately 8.9 million, or 23.6% of the total population (Statistics Canada, 2023). This represents approximately a fifth of the total population; the highest proportion among G7 countries. Moreover, it's projected that by 2041, the population of Canada may increase to 47.7 million, with 25.0 million of them being either immigrants or children of immigrants born in Canada. This group is expected to make up 52.4% of the total population (Statistics Canada, 2022).

In the past, most immigrants to Canada were from Europe, but in recent years there has been a shift towards immigration from Asia (including the Middle East), Africa, the Caribbean, and Central and South America (Statistics Canada, 2011, 2017). In fact, Africa has now become the second-largest source continent of recent immigrants to Canada, surpassing Europe with a share of 13.4% in 2016, marking the first time this has occurred. This trend persisted in 2021 as well (Statistics Canada, 2022). Furthermore, in 2021, over half of recent immigrants admitted to Canada were selected under the economic category, while the rest were admitted under the family reunification and refugee categories (Statistics Canada, 2022). The economic category of immigrants is chosen based on their potential to contribute to Canada's economy through their capacity to fulfill labor market demands, to own, manage or build a business, to make a

significant investment, to create their own employment, or to meet specific provincial or territorial labor market requirements (Statistics Canada, 2019).

Without a doubt, immigrants have had and will continue to have a significant impact on Canadian society. Surely, any current or future directions at the individual, community, and policy levels should consider the ethnocultural diversity of this nation. In 2017 alone, 80% of the total population growth in Canada was attributed to international migration, a trend that is increasingly expected to grow (Drolet & Wu, 2017; Richmond & Shields, 2005). The health of immigrants and their descendants is especially important as it will likely shape the future health profile, health care needs, and health care infrastructure of Canada. Their health status and health care requirements will have a significant impact on public policy, social spending, and the future of immigration and immigrant settlement policies.

Racial Health Disparities in Canada

Racial health inequalities are robust and very well documented. The research tells us that there are important insights that cannot be ignored. Among the key lessons learned is that these disparities are pervasive, affecting every disease, and every disease mechanism. Another important finding is that race has no genetic basis and, as such, cannot explain the observed differences in health outcomes. Instead, these differences are the result of underlying social and material conditions that vary across racialized groups (Phelan et al., 2010; Siddiqi, 2020).

Racial Health Inequalities

Despite the fact that Canada is one of the most diverse nations in the world, little is known about health disparities across specific racialized, ethnic, or cultural minority groups. Even less is known about their mental health disparities. This lack of specificity poses a great challenge to comprehensively understand and adequately meet the healthcare needs of such a significant and growing immigrant population. In part, this is due to the scarcity of nationally

representative health data on specific ethnic minority groups (Khan et al., 2017). Unlike Canada, there is already a large body of evidence finding that racialized populations are associated with strong social determinants of health in the United States (US).

Many studies have observed health outcome inequalities indicating substantial ethnic minority group disadvantages in the US (Goodman et al., 2017; James, 2009; Krieger, 2014; Krieger et al., 2005; Phelan & Link, 2015; Ramraj et al., 2016). In stark contrast, much less is known about such ethnic inequalities in Canada. Although provocative, US evidence cannot automatically be generalized to Canada because of fundamental policy and social differences between both nations. Compared to the US, Canada has lower income inequalities (Osberg, 2000; Wolff et al., 2012), higher per capita social spending (Béland & Waddan, 2017; 2019), greater social cohesion (Armstrong, 2001), and a more accessible health care system (Siddiqi et al., 2016). All of these between-country differences likely impact population health and mental health outcomes differently for each nation (Siddiqi & Hertzman, 2007; Siddiqi & Nguyen, 2010).

Similarly, although access to health care has been significantly studied in the US context—characterized primarily by private health insurance and public insurance mainly for the poor and the elderly—less is known in Canada. US studies overwhelmingly demonstrate that gaps in access to care are significantly associated with differences across racialized groups in health insurance (Card et al., 2008; Lillie-Blanton & Hoffman, 2005; McWilliams et al., 2009; Siddiqi et al., 2016). Indeed, cultural and sociodemographic characteristics—even among the same racial/ethnic population—may impact health outcomes differently for individuals in Canada and the US. As a result of Canadian immigration policies, Canada already typically selects immigrants with higher education, technical skills, and favourable health status which

likely leads to a different Canadian health profile in comparison to the US (Beiser, 2005; Perez, 2002).

Furthermore, not only is there little research on the health status of racialized populations in Canada, there is limited literature on the comparison between racialized groups, including White Canadians. The stark comparison between the Canadian literature on racialized health disparities and that of American scholarly literature is astonishing to say the least. A comprehensive US systematic review regarding racialized health disparities revealed that in 2014 alone, there were more than 500 articles produced in the literature across a broad array of diseases and outcomes (Goodman et al., 2016). In an effort to clarify the current state of knowledge regarding racialized disparities in Canada, a scoping review was conducted. A scoping review involves conducting a preliminary assessment to gauge the potential size and breadth of the existing research literature (Grant & Booth, 2009). Its primary objective is to determine the nature and extent of available research evidence, often encompassing ongoing research. This review assessed the literature until September 2022. The following databases comprised of peer-reviewed literature were searched: *PubMed, JSTOR, OVID Medline*, *Social Work Abstracts*, *Social Service Abstracts, PsychINFO, Cumulative Index of Nursing and Allied Health Literature*, *Campbell Controlled Trials Register,* and *Cochrane Central Register of Control Trials.* In addition, the following unpublished research databases were searched to control for publication bias: *ProQuest Dissertations and Theses Global*, *Conference Proceeding Citation Indexes—Science and Social Science & Humanities* and *Google Scholar* (de Smidt & Gorey, 1997; Grenier & Gorey, 1998; Torgerson, 2006). The following keyword searches were used: *racial OR ethnic* AND *health care OR healthcare OR health OR mental health* AND *disparit* OR inequali** AND *Canad**. These searches were augmented with bibliographic

reviews of retrieved manuscripts. Additionally, author name searches were performed based on retrieved manuscripts. In the interest of focusing on racialized health disparities in Canada, studies included in this scoping review had to meet the following criteria: (1) quantitatively measured at least one health outcome and, (2) minimally compared health outcomes between two different racialized groups.

In total, only 32 studies of racial health inequalities in Canada were retrieved and included ranging from the years 2003 to 2022 (Table 1). This is a staggering difference compared to the literature in the US that produced more than 500 racial health disparities studies in 2014 alone (Goodman et al., 2016). Further, this scoping review revealed that most Canadian studies have focused (1) on physical health outcomes; excluding mental health completely or evaluating mental health generally rather than examining specific outcomes, (2) most studies focus on binary categories of racialized identity (e.g., visible minority vs. white), and (3) a very limited number of studies specifically included a Latin American subsample in their analysis. In fact, only six studies were found to have included Latin Americans in their analytic sample. Similarly, Khan and colleagues conducted a scoping review of 99 studies of visible minority health in Canada over a 36 years span ranging from 1978 and 2014 (2017). They too found that most studies failed to distinguish beyond binary categories (e.g., visible minority vs. white; immigrant vs. Canadian-born). Not surprisingly, this has led to an overwhelming underrepresentation of racialized groups in Canadian health research. We cannot ignore that the near non-existence of racialized groups in health research likely underestimates any racial and ethnic health gaps in Canada.

Table 1
Characteristics of Canadian racial health disparities studies (n = 32).

Source	Health Outcome	Latin American Inclusion
Banerjee et al., 2022	Self-Rated Health	No
McAlpine et al., 2022	Self-Rated Health	No
Veenstra, 2019	Various Health Outcomes	No
McKinnon et al., 2016	Pre-Term Births	No
Ramraj et al., 2016	Various Health Outcomes	No
Sebastianski et al., 2016	Peripheral Artery Disease	No
Siddiqi et al., 2016	Health Care Access	Yes
Veenstra & Patterson, 2016	Various Health Outcomes	No
Veenstra & Patterson, 2015	Various Health Outcomes	No
Veenstra & Patterson, 2015	Various Health Outcomes	No
Chiu et al., 2015	Cardiovascular Disease Risk Factors	No
Banerjee et al., 2014	Obesity	No
Kwak & Rudmin, 2014	Self-Rated Health/Mental Health	No
Agiplay et al., 2013	Anxiety Disorder	No
Lebrun & LaVeist, 2013	Various Health Outcomes	No
Wang & Hu, 2013	Self-Rated Health	No
Kim et al., 2012	Self-Rated Health	Yes
Lebrun & LaVeist, 2011	Various Health Outcomes	No
Shrank et al., 2011	Various Health Outcomes	No

Chiu et al., 2010	Various Health Outcomes	No
De Maio & Kemp, 2010	Self-Rated Health/Mental Health	No
Liu et al., 2010	Various Health Outcomes	Yes
Prus et al., 2010	Various Health Outcomes	No
Siddiqi & Nguyen, 2010	Various Health Outcomes	No
Yeates, 2010	Renal Disease	No
Veenstra, 2009	Various Health Outcomes	Yes
Kobayashi et al., 2008	Self-Rated Health	No
Lasser et al., 2006	Various Health Outcomes	No
Wu & Schimmele, 2005	Self-Rated Health	Yes
Newbold, 2004	Self-Rated Health	No
Wong and Wong, 2003	Various Health Outcomes	No
Wu et al., 2003	Depression	Yes

One of two possible explanations for this lack of attention to racial health disparities in Canada is the national rhetoric of multiculturalism which favors issues associated with acculturation and immigration rather than a specific focus on racialized identities (Veenstra & Patterson, 2016). Indeed, most of the Canadian health disparities literature is related to immigration or acculturation issues (Newbold & Danforth, 2003; Veenstra & Patterson, 2016). Of course—Canada being a nation of immigrants—immigration and acculturation experiences ought to be thoroughly studied. Moreover, gaining insights into individual racialized identities has the potential to significantly enhance our understanding of the health and mental well-being of all individuals residing in Canada. Similarly, although multiculturalism in and of itself is a

positive concept meant to celebrate the richness in diversity of our nation, it can be utterly harmful if multiculturalism leads to the lack of acknowledgement of the heterogeny and uniqueness of racialized communities. Regrettably, the multicultural narrative that seems entrenched in Canadian discourse has not decentered whiteness, rather it constructs the idea of a white, Eurocentric Canadian culture and positions other cultures in relation to the dominant white core (Creese, 2019; Pandolfi & James, 2017; Parada et al., 2021). This lack of racial acknowledgement does not honour diversity as the concept of multiculturalism would imply, but rather accentuates the structural violence that many marginalized communities face. Failing to collect and report race-based data serves to generate and perpetuate social and health inequalities. Such data can serve to guide informed and equitable public health responses to marginalized communities.

Another likely culprit for the lack of racialized health disparities research is that Canada's population is relatively small compared to the US (Statistics Canada, 2017; US Census Bureau, 2018). This is particularly problematic in Canada because it often impedes the possibility to assemble reasonably large, nationally representative samples of specific minority groups. This has led to a binary categorization—white and visible minority—of racialized groups in much of the public health literature in Canada. As a result of this *visible minority* category typically used, there is likely an under or over-estimation of health status across specific ethnically diverse groups in Canada. This binary category essentially aggregates all ethnically diverse groups into one experience; thus, making it difficult to determine if their experiences are truly worse, better, or no different from one another (Siddiqi et al., 2017).

Although limited, Canadian race-based inequalities scholarship in health tells us that such inequalities exist. For example, a study examining racial health inequalities in self-rated health,

hypertension, and diabetes found that Indigenous Peoples in Canada had the highest risk for diabetes and were more likely to self-rate their health as fair or poor (Veenstra, 2009). In another study that examined health inequalities between Blacks and Whites, Black Canadians were more likely to report diabetes and hypertension as compared to their White counterparts (Veenstra & Patterson, 2016). Chiu and colleagues (2015) examined temporal trends in cardiovascular disease risk factors among Whites, South Asians, Chinese, and Blacks in Ontario between 2001 and 2012. They found that South Asian men had the greatest cardiovascular risk profiles over time, followed by Black men and women (2015).

Notably, the coronavirus disease 2019 (COVID-19) pandemic in Canada highlights the ways in which social structures lead to inequities in health (Ahmed et al., 2021; Datta et al, 2021). For example, as of September 30, 2021 racialized people of colour in Toronto comprised 72% of COVID-19 infections and hospitalizations compared to white residents (City of Toronto, 2021). Unfortunately, many racialized communities are also disproportionately affected by certain chronic conditions, such as HIV, diabetes, food insecurity, low-income, and unstable housing in Canada (Ahmed et al., 2021). In addition to inequitable distribution of resources which increases the risk of infection, racialized communities are also more likely to work jobs (e.g., janitorial work, agricultural work, factory work, etc.) that would not allow for preventive health and safety practices, such as the ability to work from home or social distance which are key protective measures.

Although race-based data is beginning to emerge across different provinces and public health authorities across the country, there is still not enough race-based data to fully understand the impact of COVID-19 on racialized communities in the country. Race-based data is the collection of population health outcomes stratified by racial groups (Ahmed et al., 2021). The

collection of such data prior to the pandemic could have led to a more effective response with the implementation of community-specific efforts. As critical theory tells us, power is not distributed equally amongst all member of society (Mullaly & Dupre, 2019). Moreover, although equality is of importance, equity reminds that that not all individuals should be treated the same as people do not have the same opportunities and privileges (Batistia et al., 2018). Race matters. The dichotomous variable often used in Canada (white-visible minority) has not been and will not be enough to ensure the health and wellbeing of racialized communities. Moving forward, Canada needs a better strategy to ensure that racial-based data is collected to secure the wellbeing of all its residents and to protect vulnerable communities.

The Social Construction of Race

Scientific evidence has long demonstrated that the genetic conceptualization of race is flawed (Mersha & Beck, 2020). The genetic conceptualization of race led to some attributing health disparities to genetic differences instead of recognizing the impact of social circumstances and even structural violence faced by certain groups. In contrast to genetic explanations of health, the literature indicates that racial health inequalities can be largely accounted for by racial inequalities in socioeconomic resources (Hernandez & Blazer, 2006; Pearson, 2008). As Link and Phelan (1995) noted nearly 30 years ago, social conditions are a fundamental part of health and more often than not the root causes of disease. This is not to say that genetic predispositions do not impact health—of course they do; however, the literature is clear in that social conditions matter (perhaps even more) when considering public health.

Social conditions, such as lower social economic status (SES), for example, is highly associated with limited access to healthcare, poor health literacy, and barriers to engaging in healthy behaviours (Williams & Collins, 1995; 2005). Moreover, the literature also suggests that

in addition to economic stressors, racial health inequalities can also be accounted for by physiological effects of discrimination (Krieger, 2014; Phelan & Link, 2015; Siddiqi et al., 2017). Several studies demonstrate that everyday experiences of discrimination are directly associated with increased health risks, including high blood pressure and high cholesterol (James et al., 2006; Krieger, 1990; Williams & Templeton, 2003). Exposure to discrimination and racism has also been directly correlated with poor health and mental health outcomes, including the adoption of negative health behaviours—such as smoking and alcohol consumption—to alleviate the effects of experienced discrimination (Clark et al., 1999). For this reason, this author and research study ascribe to the social construction of race whereby people are racialized through systematic differential treatment, differential access to resources, and differential access to opportunities.

Systemic Inequalities

Link and Phelan's theory of fundamental causes of disease remind us that we cannot claim to understand why health inequalities exist if we cannot explain why they persist under conditions that should eliminate or reduce them (1995). Indeed, if we can understand why they persist, this may provide clues to the more general problem of the causes of health inequalities. That is, the remarkable persistence of inequalities may provide a lever for understanding the more general fact of their existence. Similarly, Bruce McEwen (2012) explains that although the brain is indeed the central organ of stress and adaptation, the social environment as well as the physical environment have powerful effects on the body and the brain. Although there is a natural biological process which leads to physiologic responses, the perception of stress must first occur to trigger this process. As McEwen points out, it is often external factors such as

environmental stressors, major life events, and trauma which trigger this process (2012). Social conditions matter and we cannot understand health disparities without considering their impact. For example, a germinal study which sought to challenge the notion that the effect of race is presumably genetic to explain racial health disparities, studied the distribution of birthweights among infants of of US-born Blacks, African-born Blacks, and US-born Whites (David & Collins, 1997). Findings demonstrated that the birth-weight patterns of infants of African-born Black women and U.S.-born White women was more closely related than to the birth weights of infants of U.S.-born Black women. This suggests that the birthweight differences had much more to do with social location and experience than any genetic basis.

Similarly, a literature review by Schulz and Charudhari observed that the Indigenous Pima Peoples of Arizona and Mexico provided a unique opportunity to understand the independent roles of genes versus environment (2015). Their review found that the difference in type 2 diabetes between Pima Peoples that lived on the Mexican side of the border versus the American side of the border was a five and half fold difference. That is to say that 6.9 percent of Mexican Pima Peoples had type 2 diabetes compared to 38.0 percent found in American Pima Peoples. This is compelling evidence of the impact of environment and the protective role of traditional lifestyles, as well as the potential dangers of environmental modernization.

Latin American People: Definitions

Undoubtedly, as immigration patterns in the US and Canada continue to change—where racialized people form larger sectors of society—it is important for practitioners and policy makers alike to understand the societal conditions that produce inequities in population health and human development. Of interest in this area of public health are Latin Americans—one of the fastest growing populations in both Canada and the US. When defining the size and indeed

the composition of this population, a significant amount of scholarly disagreement regarding appropriate terminology is found, particularly around Latin American, Latino/a, and Hispanic.

First, it's important to clarify that Hispanic, Latino/a, or Latin American is not a racial identification. In fact, Hispanics, Latinos/as, or Latin Americans can be of any race, because all these identifying terms refer to ethnicity, which is linked to cultural expression and identification (Mullaly & Dupre, 2019). This distinction, however, even among Latin Americans is not universally agreed upon. In a 2015 US survey by Pew Research Center found that 17 percent of Latin American adults said being Latin American is mainly a matter of race, while 29 percent said it is mainly a matter of ancestry, and 42 percent said it is mainly a matter of culture (2022).

Generally, however, Latin Americans or Latinos/as refers to individuals whose origins come from a country of the Americas that was colonized and influenced by a Latin power (Spain or Portugal) in the past (Ginieniewicz, 2010). Moreover, Latin America is a geographical region comprising 19 Spanish and Portuguese speaking countries of North, Central America, South America, and the Caribbean. The term Hispanic, on the other hand, is the official terminology used in the US and refers to individuals from Spanish-speaking nations who have Mexican, Puerto Rican, Cuban, and Central and South American origins, excluding Brazil (Delgado-Romero et al., 2013). Some argue that the term Hispanic emphasizes the white European colonialism which discriminates against indigenous, mixed (*mestizo*), black, and any other non-European and non-Spanish speaking heritage (2013). Others also suggest that the term is a misleading homogenization of the rich cultural diversity of this population (2013).

The term Latino—or the feminine form Latina—is thought to be more progressive as it deemphasizes European origins, is gender specific, it refers to all peoples of Latin America, and includes individuals of Brazilian origin (2013). Another term that has gained traction in recent

years as an alternative to Hispanic and Latino/a is "Latinx." This term is being utilized by various news and entertainment sources, corporations, local governments, and universities to refer to the Hispanic population in the country (Pew Research Centre, 2022). However, the usage of Latinx is not widely adopted, and its emergence has sparked discussions regarding its suitability in a gendered language like Spanish, while others view Latinx as an inclusive term that encompasses gender (2022).

Similar to the use of the term Hispanic or Latino/a in the US, Canada uses the term Latin American, which includes individuals of Latin American origins—including Brazil (Statistic Canada, 2007). Interestingly, in Canada, this definition is not widely accepted. In fact, part of this community prefers to identify as Hispanic or by their country or origin (Ginieniewicz, 2010). In a Canadian study in which 100 individuals of Latin American origin were asked to self-identify with a particular group, 45 percent identified themselves as Latin Americans, 10 percent considered themselves Hispanics, and the rest of the responses were relatively fragmented across different nationalities, ethnic groups, and religions (Ginieniewicz, 2010). As Aragones and colleagues also point out, many Hispanics or Latinos or Latinx or Latin Americans tend to self-identify more often with their country of origin or with their ancestors' country of origin, and provide that information as their ethnicity (2013).

For consistency purposes, this dissertation will use the Canadian terminology and definition of Latin American, but recognizes and understands that this richly diverse population may self-identify differently. Ultimately, this dissertation hopes to clarify and extend the health, mental health, and health care utilization knowledge of this unique population in Canada. The following chapters below will present a review of the literature, methodology, results, and a discussion of implications, limitations, and future research directions.

Chapter 2: Literature Review

Latin Americans in the US and Canada

According to recent estimates, the US Latin American population reached over 62 million in 2021, an increase of 23 percent over the previous decade that outpaced the nation's 7 percent overall population growth (Passel et al., 2022; Pew Research Center, 2022). It has been projected that by 2060 one of every three US residents will be of Latin American heritage (US Census Bureau, 2019). Though not as pronounced, large expansions of Latin American immigration and resident populations have also been contemporaneously witnessed in Canada (Statistics Canada, 2005; 2011; 2017).

According to the latest census, the population of Latin American people in Canada is currently 674,640 (Statistics Canada, 2019). This represents a Latin American population growth of 45 percent within one decade (Statistics Canada, 2007; 2019). Clearly, the Latin American population in the US is significantly larger than that of Canada. Unsurprisingly, for this reason most of our knowledge regarding Latin Americans—particularly epidemiological knowledge—comes from American data. However, there are important and significant demographic differences between Latin Americans in the US and Canada which at the very least warrant closer consideration before generalizing US findings to Latin Americans in Canada.

Latin American Demographics in the US

In the US, individuals who identify as Latin Americans are primarily Mexican (61.4 percent), followed by Puerto Rican (9.6 percent), Central American (9.8 percent), South American (6.4 percent), and Cuban (3.9 percent; OMH, 2021). Additionally, the largest Latin American populations reside in California, Texas, Florida, New York, Arizona, and Illinois (2021). Another significant point is that in 2019, 30.8 percent of Latin Americans were under the age 18 in comparison to 18.6 percent of Non-Latin American Whites (NLAW; OMH, 2021).

Additionally, there are significant disparities regarding important social determinants of health of Latin Americans in the US. According to a 2019 US Census Bureau report, 70.5 percent of Latin Americans in comparison to 93.3 percent NLAW had a high school diploma or higher, 17.6 percent of Hispanics in comparison to 36.9 percent of NLAW had a bachelor's degree or higher, and 5.6 percent of Latin Americans held a graduate or advanced professional degree, as compared to 14.3 percent of the NLAW population (Semega et al., 2020). Moreover, Latin Americans are more likely to experience greater poverty in the US. Although the poverty rate increased for both NLAW and Latin Americans between 2019 and 2020, Latin Americans had a poverty rate of 17.0 percent compared to 8.2 percent of NLAW (Shrider et al., 2021).

Furthermore, Latin Americans have an alarming disproportionately low rate of health insurance coverage in the US. In 2019, only 50.1 percent of Latin Americans had private insurance compared to 75 percent of NLAW (2021). Further, 36.3 percent of Latin Americans were covered by Medicaid—public health insurance program for people with low income in the US—while 18.7 percent of the population did not have any health insurance at all. Out of any racial or ethnic group within the United States, Latin Americans have the highest uninsured rates followed by Blacks with 10.4 percent, Asians with 5.9 percent, and NLAW with 5.4 percent (2021). The literature has been clear regarding the impact of poverty and inaccessible health care, emphasizing that high poverty and no access to quality health care leads to poor health. Given the rapid Latin American growth in the US, it is reasonable to expect, therefore, that this community will represent significant social policy challenges well into the next generation with very probable—and one of the most relevant repercussions—being surely in the realm of public health.

Latin American Demographics in Canada

As discussed earlier, even though the Latin American population has attracted significant scholarly interest in the US—due in part to its demographic, economic, and cultural relevance—much less consideration has been given to Canada's comparatively smaller Latin American population. As Armory points out, Canada's scholarly output regarding its own Latin American population is scarce and undoubtedly hinders our understanding of this growing population (2014). Regrettably, most of what we know about Latin American demographics—such as educational attainment, unemployment rates, and age distributions—in Canada comes from the 2001 Canadian Census or 2002 Ethnic Diversity Survey (Armory 2014; Ginieniewicz, 2014). This represents a devastating 20-year knowledge gap that cannot be ignored. Of course, this is not to say that Latin Americans have not been included in some small study samples over the last 20 years. Indeed, although not many studies have specifically included Latin Americans, there simply is not an up-to-date comprehensive analysis or summary of Latin Americans in Canada (Lindsay, 2007; Sidiqqi et al., 2016). This present study aims to fill this important gap.

According to yearly immigration statistics by source countries of citizenship between 1965 and 2015, the Latin American population in Canada constitutes a diverse community, with Mexicans accounting for 17.8% of the total Latin American population, followed closely by Colombians (14.2%) and Salvadorians (11.9%; Armony, 2014). Additionally, the majority of Latin Americans living in Canada were born outside the country. In 2001, 62% of Canadians who reported Latin American origins were born outside of Canada, whereas this was the case for 18% of the overall Canadian population. In contrast to US Latin Americans, most immigrants of Latin American origin also arrived in Canada relatively recently. Of foreign-born Latin Americans living in Canada in 2001, 47% had arrived in the previous decade, while another 35%

had come to Canada between 1981 and 1990.

In contrast, only 3% had arrived in the 1960s, while less than 1% had come to Canada before 1961 (Statistics Canada, 2007). Most live in Ontario, Quebec, British Columbia, and Alberta. Latin Americans in Canada are also relatively young compared to the overall Canadian population and more likely than adults in the rest of the population to hold a university degree (2007). Similar to the US, Latin Americans in Canada are also more likely than non-Latin American white and other racialized peoples to have lower incomes. In 2001, 28% of people who reported Latin American origin had incomes below the low-income cut-offs, compared with 16% of the total Canadian population (2007). Moreover, Armony noted that as a minority group, Canadian Latin Americans exhibit one of the lowest average employment incomes, amounting to $26,241 Canadian dollars in 2006 (2017). In comparison, Black Canadians had an average income of $28,231, Arab Canadians an average income of $29,441 (Armony, 2017).

Interestingly, however, Latin Americans in Canada demonstrate a slightly higher likelihood of being employed in comparison to the overall adult population. In 2001, 64% of Latin American adults aged 15 and above were employed, whereas the employment rate among all Canadian adults was 62% (Statistics Canada, 2007; Armony 2017). Certainly, Latin Americans in Canada and the US share a history, traditions, culture, and linguistic diversity, but they are also not a homogenous group. There are significant sociodemographic differences which could impact our understanding of their health and healthcare needs. Furthermore, these differences could be further accentuated by the social and political differences between Canada and the United States, particularly due to their different health care policies.

Pre-Columbian and Colonization Histories in Latin America

To fully comprehend the resiliencies and vulnerabilities of the people in Latin America, it is necessary to understand their intricate history. The term "Pre-Columbian" refers to the time period in Latin American history that occurred before the arrival of European colonizers in the late 15th century (Burkholder & Johnson, 2016). During this time, many different civilizations and cultures developed and thrived in Latin America, including the Maya, Aztec, and Inca.

The Mayan civilization flourished in parts of modern-day Mexico, Guatemala, Belize, Honduras, and El Salvador (Demarest, 2004). They were known for their advanced writing system, astronomy, and mathematical achievements, as well as their impressive cities, including *Tikal* in Guatemala and *Chichen Itza* in Mexico (2004). Similarly, the Aztec were a thriving civilization known for their extensive trade networks and military prowess (Smith, 1996). Their capital city—*Tenochtitlan*—was one of the largest cities in the world at the time of its conquest by the Spanish in 1521 (1996). The largest empire in pre-Columbian America was the Inca civilization, spanning much of the Andes region of South America (D'Altroy, 2002). The Inca were known for their impressive stonework, including the famous *Machu Picchu* in Peru, as well as their extensive network of roads and bridges, which allowed them to maintain control over their vast territory. Beyond these larger civilizations, of course, it's important to note that there were countless other indigenous cultures throughout the region, each with their own languages, traditions, and customs.

These civilizations, however, were catastrophically stunted—nearly eradicated—with the arrival of European colonizers in the late 15th and early 16th centuries (Galeano, 1997). Christopher Columbus (*Cristóbal Colón*) is often credited with being the first European to arrive in America in 1492, but his arrival in the Caribbean marked the beginning of a long and violent

period of colonization, exploitation, and cultural assimilation in the Americas (Galeano, 1997; Mann, 2005). Spanish colonizers, such as Hernán Cortés, Francisco Pizarro, and Pedro de Alvarado, led the initial wave of colonization in Latin America. They sought to claim new lands, extract resources, and forcefully convert indigenous populations to Christianity. These efforts often involved violence, forced labor, and the spread of disease, which led to the decimation of many indigenous communities (Mann, 2005).

Similarly, the Portuguese also played a significant role in Latin American colonization, establishing settlements in what is now Brazil in the early 16th century (Bethell, 1987). Over time, the European powers that colonized Latin America established large-scale plantation economies, importing enslaved Africans to work in fields and mines (Rout, 1976). As a result of this history, many Afro-Latin Americans (*Afro-Latinos*) are represented in Latin America. The resulting social and economic structures were characterized by racial hierarchy, with Europeans at the top and Indigenous people and African people at the bottom. Latin American countries gained independence from their colonial rulers in the early 19th century, but the legacy of colonization continues to shape the region's social, economic, and political landscape (Galeano, 1997). Today, Latin America is home to a diverse mix of cultures, languages, and ethnicities, shaped by centuries of colonization, resistance, and resilience.

History of Latin American Migration in the US and Canada

The Latin American history in the US is rich and diverse with displaced peoples, immigrants, and refugees long before the nation was established. In fact, Latin Americans have lived in what is now the US since the 16th century (Balderrama & Rodriguez, 2006). Furthermore, as Griswold del Castillo summarizes in his book *The Treaty of Guadalupe Hidalgo: A Legacy of Conflict*, the first significant influx of Latin American immigration to the

US occurred during the California Gold Rush and just after most of the modern boundary between the US and Mexico was established at the end of the US-Mexican War between 1846 and 1848 (Gutiérrez, 2016). Under the terms of the Treaty of Guadalupe Hidalgo (signed outside of Mexico City in February 1848), the Republic of Mexico was forced to cede to the US more than one-third of its former territory, including what are now the states of California, Nevada, Utah, Arizona, New Mexico, Colorado, Texas, and parts of several other states (2016).

This led to the displacement and naturalization of approximately 100,000 former citizens of Mexico who chose to remain north of the new border at the end of the war (Griswold del Castillo, 1990). Significant waves of Puerto Rican and Cuban immigration in the early 1900s would follow (Burnett & Marshall, 2001; Wasem, 2009). Since the 1970s and 1980s, an unprecedented wave of immigrants from Central American nations of El Salvador, Guatemala, Honduras, and Nicaragua—many of them undocumented—have fled violence, poverty, and political turmoil (Gutiérrez, 2004). Each wave has brought with it traditions and cultures from all over Latin America with a population that is expected to continue to grow.

Compared to the US, Latin American immigration in Canada is significantly smaller and more recent. Nonetheless it is richly diverse and characterized by the extraordinary growth since the early 1970s (Simmons, 1993). There have been three notable migration waves of Latin Americans into Canada, often as a response to political conflict, violence, and civil war (Riano-Alcala, 2008; Simmons, 1993). The first wave of Latin American immigrants to Canada resulted from political violence in Chile in the 1970s (Babis et al., 2019; Simmons, 1993). Soon after, El Salvador's military dictatorship and civil war in the 1980's led to the second wave of Latin Americans. More recently, additional waves of Hispanics from other Latin American countries, including Mexico, Colombia, and Peru has been observed (Saphir, 2008). Not surprisingly, more

Latin American immigrants have arrived as refugee claimants, many of which have experienced trauma in their home country (Saphir, 2008). Such differences between American and Canadian Latin Americans, therefore, are sure to have different effects on their health and mental health outcomes.

The Hispanic Health Paradox

Racialized identity or ethnicity is a significant predictor of health. It is well-established that racially and ethnically diverse people endure poorer health compared to whites—typically experiencing higher rates of infant mortality, all-cause mortality, and increased risk of disease (Siddiqi et al., 2016; Veenstra & Patterson, 2016; Waidmann & Rajan, 2000; Ward et al., 2004). Epidemiologists attribute this to the systemic disadvantages faced by racialized groups in terms of social determinants of health, such as lower access to care, lower educational attainment, higher unemployment, and overall higher poverty rates. All of these factors understandably contribute to poor health—except in the case of Latin Americans.

More than three decades have passed since Dr. Ronald Williams and his colleagues found that Mexican-born women in California had a much lower proportion of low-birth-weight infants than did US-born NLAW women (1986). Their study would be one of the earliest observations of what Kyriakos Markides would coin as the *Hispanic Health Paradox* (HHP), which describes the epidemiological mystery of why Latin American individuals in the US live longer than their white counterparts despite generally lower socioeconomic status and health-care access (Markides, 1983; Markides & Coreil, 1986). The HHP is the exception to the most basic of public health principles. Despite facing lower socioeconomic conditions relative to white people, Latin Americans overall enjoy comparable and often better health outcomes. Since Markides' early work in the 1980s, a substantial body of research has continuously pointed to lower

mortality rates in adulthood and similar or better overall health for Latin Americans compared to non-Latin Americans despite apparent risk factors (Hernandez et al., 2022; Markides & Eschbach, 2005; Palloni & Arias, 2004; Ruiz et al., 2013; 2016).

What is paradoxical—indeed puzzling—about the HHP is that Latin Americans generally experience lower socioeconomic status compared to NLAW (Morales et al., 2002; Palloni & Arias, 2004). At the same time, research consistently demonstrates that low socioeconomic status is a reliable indicator of higher mortality rates and poor population health, both physically and psychologically (Cooper et al., 2012; Hernandez et al., 2022; Marín-León et al., 2011; Scheppers et al., 2006). It is unexpected—and again paradoxical—that Latin Americans could have equal to or better health and lower mortality rates than NLAW who generally enjoy a more favourable socioeconomic profile. Given the heightened risks faced by Latin Americans (e.g., lower SES, lower educational attainment, lower rates of health insurance, etc.), one would expect Latin Americans to fare similarly to other marginalized minority populations on a variety of health outcome measures.

Overall, however, Latin Americans have lower rates of mortality than NLAW and African Americans (Markides & Eschbach 2011, Murphy et al. 2017), and generally have lower morbidity rates for chronic conditions such as hypertension, high cholesterol, and some cancers (Franzini et al., 2001, Murphy et al. 2017). Moreover, much better health indicators and outcomes including body mass index (BMI), self-rated health, reproductive health, and mortality have been exhibited by Latin Americans in the US (Adames et al., 2014).

Similarly, this health advantage has also been observed within the realm of mental health with Latin Americans generally experiencing lower rates of mood and anxiety disorders (Garcini et al., 2020; Grant et al., 2004; Vega, 2004). Indeed, several epidemiological studies indicate no

differences in prevalence rates of mental health disorders between Latin Americans and NLAW (Alegría et al., 2017; Saklofske et al., 2007). Some studies even point to lower mental health service utilization even after controlling for income and insurance coverage (Cooper et al., 2020). Furthermore, this phenomenon appears to be more potent among the most impoverished Latin Americans who recently emigrated to the US. Such first-generation immigrants have been observed to have lower rates of diverse physical and psychiatric illness as well as lower mortality, including infant mortality rates (Abraido-Lanza et al.,1999; Markides & Coreil, 1986; Zsembik & Fennell, 2005).

Notwithstanding the high prevalence of socioeconomic-related risks among Latin Americans, the literature consistently demonstrates that Latin Americans enjoy better-than-expected health across an array of outcomes (Cortes-Bergoderi et al., 2013; Gasevic et al., 2015; Hummer et al., 2007; Kurian & Cardarelli, 2007; Lariscy et al., 2015). However, the HHP is not an omnipresent pattern for all Latin Americans. Nativity, country of origin, time spent in the US, and gender all impact the presence and strength of this health advantage in ways that are, thus far, not completely understood (Balcazar et al. 2015, Camacho-Rivera et al. 2014, Hummer et al. 2000, Markides & Eschbach 2011). Some studies have suggested no such health advantage amongst Latin Americans and have brought forth several hypotheses that explain this supposed advantage (Abraído-Lanza et al., 1999; Arias, et al., 2010; Boen et al., 2019; Palloni & Arias, 2004; Ricardo et al., 2022).These mixed results on the HHP highlight the need to explicate the mechanisms that drive the paradox and any Latin American vulnerabilities and resiliencies to illness—both in physical and mental health.

To clarify and organize the current state of knowledge of the HHP, a systematic review was conducted. The primary aim of this review was to find out how much support there is for the

HHP. This review was undertaken with the approach outlined by Cooper for a research synthesis (2016). The following research databases were searched until May 1, 2022: *CINAHL, PubMed, Medline, PsychINFO, Social Work Abstracts, Cochrane Central Register of Control Trials, ProQuest Dissertations and Theses Global, and Google Scholar*. Considering that there is more than 30 years' worth of research regarding the HHP, a focus on synthesized research was accentuated. To this end, search terms included *Hispanic Health Paradox, Hispanic Paradox, Latinx Paradox,* and *meta-analysis, systemic review, scoping review,* and *literature review.* Abstracts of articles were retrieved and reviewed on the following inclusion criteria: (1) research synthesis analyses, (2) comparative analysis of Latin Americans and NLAW, and (3) analysis of mortality or other health outcomes. All relevant manuscripts were manually retrieved and reviewed to determine their inclusion into the review. These searches were then augmented with bibliographic reviews of retrieved manuscripts and author name searches. Information on primary focus and major findings were tabulated and are displayed in Table 2.

In total, six research synthesis studies spanning from 2001 to 2021 were retrieved: six systematic reviews or meta-analyses, one scoping review, and one narrative literature review. All studies were conducted in the US, with some studies including subgroup analysis by country of origin or region of origin (ex. Central or South America). In addition, all comparison analysis of Latin Americans was at the very minimum with NLAW, with some studies including comparisons with other racialized groups such as non-Latin American Blacks and Asian Americans. Article attrition was attributed to duplication and to disqualification based on failure to meet inclusion criteria. Moreover, central analysis of all studies included, all-cause mortality, cardiovascular (CV) mortality, perinatal outcomes (e.g., preterm birth, low birth weight, infant

mortality), lung cancer survival rates, and various other health outcomes (e.g., cancer, HIV, diabetes, etc.). Out of the six studies, four syntheses found support for the HHP.

For example, in Cortes-Bergoderi and colleague's systematic review and meta-analysis of seventeen studies on all-cause and cardiovascular mortality (CV), Latin Americans experienced lower CV and all-cause mortality despite their higher prevalence of different CV risk factors compared to NLAW. There was a statistically significant association between Latin American ethnicity and lower CV mortality (OR = 0.67; 95% CI 0.57, 0.78), and lower all-cause mortality (OR = 0.72; 95% CI 0.63, 0.82). They also conducted subgroup analyses by prevalence of CV risk factors for CV mortality and all-cause mortality. They found no statistically significant interactions to explain heterogeneity. The strength of the association between Latin American ethnicity and the outcomes did not differ according to sex or to the extent of adjustments in multivariate analysis undertaken in the original studies.

Similarly, Ruiz and colleagues (2013) synthesized fifty-eight longitudinal studies focused on all-cause mortality and found that Latin Americans generally experienced lower risk of mortality compared to other racial groups (NLAW, non-Latin American Black, and Asian). They noted that most studies included in their analysis often neglected to mention the precise ethnic background of Latin American participants, with approximately 80% of the reports omitting this information (2013). When included, however, such studies typically involved Latin Americans of Mexican or Puerto Rican descent. Further, all studies compared Latin Americans with NLAW people and only five out of the fifty-eight studies comparing Latin Americans to other racialized groups (ex. Non-Latin American Blacks).

Latin American ethnicity was statistically associated with a 17% mortality advantage (OR = 0.83; 95% CI, 0.75, 0.91). Odds ratios ranged from 0.39 to 2.75 across all studies

indicating a very large degree of heterogeneity, suggesting that systematic effect size variability was unaccounted for. Additional analysis was conducted to determine the extent to which variability in the effect sizes was moderated by other factors. This sub-analysis found that mortality risk was greater for older populations, varied by pre-existing health conditions, and did not statistically differ by gender or by the length of time participants were followed.

Table 2
Characteristics of Included HHP Research Synthesis Studies

Source	Synthesis Method	# of Studies	Analysis	Results
Montoya-Williams et al., 2021	Scoping Review	33	Perinatal Outcomes	Support for HHP
Price et al., 2021	Systematic Review	28	Lung Cancer Survival Rate	Support for HHP
Ruiz et al., 2013	Systematic Review Meta Analysis	58	All Cause Mortality	Support for HHP
Cortes-Bergoderi et al., 2013	Systematic Review Meta Analysis	17	Cardiovascular Mortality	Support for HHP
Teruya et al., 2013	Systematic Review	46	Various Health Outcomes	Mixed Support for HHP
Franzini et al., 2001	Literature Review	89	Various Health Outcomes	Mixed Support for HHP

Looking into the overall survival (OS) and cancer-specific survival (CSS) rates of ethnically diverse lung cancer patients, Price and colleagues systematically reviewed twenty-eight studies and found that Latin Americans exhibit similar or better survival in the context of lung cancer relative to NLAW despite a considerably worse risk factor profile (2021).Overall, 26 (92.9%) OS models and 20 (95.2%) CSS models documented either no difference or a Latin American survival advantage. Thus, these findings also appear to support the HHP in the context of lung cancer.

Similarly, in Montoya-Williams and colleagues' scoping review of thirty-three perinatal outcomes studies, Latin American women had better perinatal outcomes compared to non-Latin American Black infants (2021). Moreover, Latin American infants had similar outcomes to NLAW infants despite their mothers having a higher at-risk profile similar to non-Latin American black infants related to education, socioeconomic status, and access to health care. Researchers, however, also found that heterogeneity could largely be explained by other confounding factors. Although overall, Latin American women indeed had better perinatal outcomes, researchers noted that Latin American immigrant women were more advantaged than US-born Latin American women.

They also found that country of origin may be an important element to consider as Mexican and Cuban women reporting low rates of adverse perinatal outcomes, where as Puerto Rican women often exhibiting the highest risks (Montoya-Williams et al., 2021). Lastly, they found that some data comparing Mexican-born women's outcomes simultaneously on both sides of the Mexican-US border showed a slight advantage for Mexican women who deliver in Mexico compared to their counterparts who deliver in the US. All of these research syntheses discussed thus far point to strong support for the HHP; however, the mechanisms as to how the HHP works

is unclear. What we can gather from these studies is that perhaps the HHP is not a homogenic phenomenon across all Latin Americans and that differences in age, immigration status, and country of origin could be significant moderating factors that need further study.

Two out of the six research syntheses in this overview noted mixed results for the HHP. In Franzini and colleague's literature review of eighty-nine studies conducted in the US analysing various health outcomes (e.g., cardiovascular disease, stroke, cancer, etc.) spanning from 1966 to 1999, all-cause and infant mortality was found to be lower for Latin Americans despite lower income and educational attainment (2001). Researchers indicated, however, that the paradox was mainly apparent for mortality and less so for morbidity. They posit that differences in age, immigration status, country of origin, acculturation, and specific disease or cause of death are moderating factors that need to be considered in examining the HHP.

Likewise, Teruya and colleagues also concluded mixed support for the HHP after systematically reviewing forty-six studies analysing various health outcomes (2013). In their review, they noted that the HHP does not protect consistently across all Latin Americans, Puerto Ricans and Cubans in particular enjoying fewer health advantages. Furthermore, they observed that differences in age, gender, country of origin, acculturation, health behaviors and diet, acculturative stress, adolescence, undocumented and uninsured status, age of arrival in the US, and length of exposure, appear to be significant moderating factors of the HHP. Thus, the HHP remains a matter of investigation.

Several hypotheses have been proposed to explain the HHP including data inaccuracies, the healthy migrant effect, diet and nutrition, dual frame of reference, and social cultural factors. Each theory will be outlined and discussed below.

The Hispanic Paradox: Theoretical Explanations

Data Inaccuracies

Three major data problems related to potential inaccuracy of the HHP include: (1) inaccurate identification of ethnicity on death certificates, (2) misreporting of age, and (3) mismatching of records (Palloni & Arias, 2004; Ullman et al., 2011). There is evidence of possible under reporting of Latin American origin on death certificates. For example, Palloni and Arias found that an error rate of approximately 7% has been estimated for Latin Americans misreporting their ethnicity (2004). However, they also reported that it was unlikely that their data set was affected by this source of error because ethnic categorization was derived from baseline self-identification rather than death certificate proxy response. Similarly, the inaccurate reporting of age has been proposed as another source of error in data. Some research suggests that Latin Americans 55 years or older more than likely overstate their age; therefore, producing the inaccurate representation that Latin Americans experience longer mortality (Palloni & Arias, 2004). This would indeed lead to a downward bias and illusion of a Latin American health advantage; however, this similar pattern of age overstatement has also been found across Latin Americans in general and among other ethnic groups who did not experience similar health advantages or higher mortality rates (Dechter & Preston, 1991; Preston et al., 2003; Rosenwaike & Preston, 1983).

Lastly, given that many Latin Americans in the US often have uncertain legal status and lack universal identifiers such as social security numbers, data may be inaccurate, incomplete, or impossible to match (Arias, et al., 2010). This explanation, however, also seems implausible. As Arias and colleagues explain, in order to account fully for an advantage in health or mortality—at least among foreign-born Mexicans—the rate of mismatches should increase with age. This is

an inconsistent pattern with the idea that illegal residence is at the root of inaccurate matching. Moreover, if not among foreign-born Mexicans, individuals who are most likely to count illegal migrants among their ranks, this explanation based on mismatches does not hold for non-Mexican foreign-born Latin Americans (Arias et al., 2010; Palloni & Arias, 2004;). It is unlikely, therefore, that these errors in data can cause significant empirical errors in research findings.

The Healthy Migrant Effect

The Healthy Migrant Effect (HME) is a prominent theory that has been debated as a potential explanation for the Hispanic Health Paradox. The HME suggests that immigrants exhibit better health outcomes than domestic-born populations in the destination country (Elshahat et al., 2022). Indeed, the literature does indicate that immigrants experience lower rates of chronic conditions (Brown 2018; Gorman et al., 2010), less depression (Harker 2001), and lower mortality rates (Dupre et al., 2012) than non-foreign-born individuals. Moreover, the HME posits that immigrants have a health advantage over the domestic-born which deteriorates with increased length of residency in their new host country (Newbold, 2006; Osypuk, 2015; Vang et al., 2017). Latin Americans, however, continuously seem to be advantaged not only in comparison to NLAW, but also in comparison to other racialized groups with similar at-risk profiles such as African Americans (Young & Hopkins, 2014). For instance, in their study of lung cancer histology and patient survival, Saeed and colleagues (2012) found that Latin American patients had a statistically significant better survival compared to NLAW (hazard ratio [HR] = 0.85; 95% CI, 0.83, 0.87), and much longer survival compared to Black patients, who had worse survival despite comparable lung cancer histology and stage of disease at diagnosis (HR = 1.09; 95% CI, 1.07, 1.11).

Notably, the HHP is often associated with life expectancy and infant mortality (Markides & Eschbach, 2011). In 2019 Latin Americans in the US had a life expectancy at birth of 81.8 years, not only greater than their NLAW counterparts (78.8 years), but also greater than their African American counterpart (74.9 years) despite having a similar socioeconomic profile (Fernandez et al., 2023). As per infant mortality, Latin American women have similar rates compared to NLAW women (5.0% and 4.5%, respectively), yet less than half the rate of African American women (10.6%) despite similar at-risk profiles (Fernandez et al., 2023). The HME alone, therefore, cannot fully account for the HHP as we observe Latin Americans fairing better than other racialized groups with similar socioeconomic conditions.

Nevertheless, both individual and national factors have been proposed to understand the HME and its influence on the HHP. At the individual level, immigrants are believed to be a self-selected segment of the country of origin with relative overall good health relative to non-immigrants in the sending country (Bostean 2013; Elshahat et al., 2022; Vang et al., 2017). As for Latin American immigrants, some scholars have suggested that because only the most resilient and healthiest migrants are most likely to survive the treacherous journey to the US, a selection process is created whereby the healthiest, strongest, and youngest individuals migrate out of their countries (Bostean, 2013; Teruya & Bazargan-Hejazi, 2013; Ullman et al., 2011). At the national level, this positive selection process occurs because of strict migration policies that favour healthier and well-educated immigrants (Ramraj et al., 2015). As Elshahat and colleagues point out, however, these perspectives fail to take into consideration refugees and undocumented immigrants' situations, which often do not involve a positive self-selection at either the individual or national levels (2022).

Although this selection process is plausible for Latin Americans, very little support in the current literature exists to support this explanation. Some scholars have argued that the HME cannot fully account for health and mortality advantages among Latin Americans and only partial empirical evidence verifying the validity of this theory has been found (Palloni & Arias, 2004; Razum et al., 2000). For example, in Rubalcava and colleagues study, associations between the likelihood of migrating to the US and physical health measurements were indeed found—suggesting that migrants were positively selected for health (2008). Such associations, however, were found to be small and only a few were statistically significant. In contrast, Bostean tested this hypothesis by comparing the health of Mexican immigrants in the US to non-migrants in Mexico, and to return migrants in Mexico and found no support for positive selection migration (2013). In fact, she found that immigrants are negatively selected on self-rated health status consistent with prior research (Angel et al., 2007; Crimmins et al., 2005; Rubalcava, 2008).

Furthermore, given the geographical location of Canada bordering the United States, the probability that only the most resilient and healthiest Latin Americans immigrate to Canada may not hold true. In addition, important differences exist between Latin Americans in the United States and Canada. In the US, the majority of Latin Americans are of Mexican, Puerto Rican, and Cuban descent and most have lived in the U.S. for multiple generations (Organista, 2007). In contrast to the US, Latin Americans in Canada are from El Salvador, Mexico, and Chile, with most of them being first-generation immigrants (73%)—immigrating to Canada after 1980 (Lindsay, 2007). As previously discussed,. understanding this notably different Latin American immigration history in Canada compared to the US is important. In contrast to the HME's individual and national explanations—positive self-selection and immigration policies that

favour healthier immigrants—Latin American migration in Canada has historically involved refugee immigration typically not associated with positive self-selection (Ginieniewicz and McKenzie, 2013; Ginieniewicz, 2010).

Salmon Bias

Another health-related migrant effect proposed to explain the HHP is the salmon bias hypothesis. Unlike the HME which is characterized by positive selection, salmon bias is a negative selection effect that refers to selection bias resulting from return migration (Fernandez et al., 2023). Coined by Pablos- Méndez in 1994 (p. 1237), he described that "many Hispanics return to their country of birth when they retire, become severely ill, or simply after a temporary job". Arenas and colleagues suggest that other reasons to return to country of origin is associated with lower cost of living, the presence of family member, and lower return migration costs (2015). Furthermore, it's been suggested that immigrants return to their home-countries because of poor health-related reasons, primarily as a result of more affordable health insurance options in their home-countries (Abraído-Lanza, et al.,1999). This negative migration, therefore, can result in the inflation of average population health of the remaining immigrant population (Palloni & Arias, 2004).

There is some evidence for the salmon bias hypothesis. For example, one study found that some Mexican Americans with health conditions and other chronic illnesses do return to Mexico for treatment because of lack of health insurance (Nigenda et al., 2009). Similarly, Turra and Elo also found similar results in their study when examining salmon bias among Latin Americans ages 65 years or older (2008). Both studies, however, found that although the salmon bias effect may exist, it is of too small a magnitude to be a primary explanation for the HHP (Gallo et al., 2009; Nigenda et al., 2009; Turra & Elo, 2008; Ullman et al., 2011). In addition,

this study may be of limited generalizability as it only examined individuals ages 65 or older. Results from studies on older adults may not be generalizable to younger migrants as negative selective migration may vary by age (Bostean, 2013; Massey, 1987). Likewise, in a study by Riosmena and colleagues (2013) with data from the Mexican Health and Aging Study in Mexico and the US National Health Interview Survey, some evidence for the existence of salmon bias was found. Researchers, however, explained that salmon bias was only a partial explanation for the HHP and did not fully account for the phenomenon.

Importantly, Bostean points out that few studies have adequately examined selective migration. She reveals that most studies that examine the HHP and migrant health selectivity use data from the destination country only, which ultimately cannot assess whether immigrants are healthier than the non-immigrant populations they leave behind or whether return migrants are healthier than immigrants who stay in the destination country (Bostean, 2013). In other words, to accurately answer these questions, data from both the origin and destination countries is necessary. In effect, although this selection process of return migration may possibly explain lower mortality rates and greater health measure amongst Latin Americans, only a small amount of empirical support has been found (Gallo et al., 2009; Ullman et al., 2011). Moreover, salmon bias also seems unlikely for Latin American Canadians because of universal health care policies which would likely retain Latin American immigrants rather than to encourage negative migration back to their home countries as would typically be the case in the US.

Diet and Nutrition

Some scholars have suggested that Latin American immigrants bring with them healthier eating habits, which they maintain, at least initially, in their new country (Gordon-Larsen et al., 2003; Perez-Escamilla & Putnik, 2007). Others have emphasized health behaviors and lifestyle

as a major differentiating factor, with some evidence suggesting that immigrants are more likely to lead a healthier lifestyle and less likely to engage in risky practices such as smoking, alcohol use, and drug consumption, relative to native-born populations (Haynes et al., 1990; Kimbro, 2009; Lizarzaburu & Palinkas, 2003; Singh & Siahpush, 2002;). Furthermore, while better nutrition and better health habits are important for individuals' general health, they are likely to be particularly beneficial in preventing the onset of chronic diseases, including cardiovascular diseases (Bazzano et al., 2003; Kris-Etherton et al., 2002; Lakier, 1992).

The variation in dietary patterns between Latin Americans and NLAW may be a possible explanation for the HHP. The literature tells us that increased consumption of high-fibre foods such as legumes—primarily in the form of beans—is indeed a protective factor for good health (Mitchell at al., 2009; Young & Hopkins, 2014;). For example, legumes have been shown to carry protective effects against chronic illnesses (Ayala et al., 2008). A major element of the Hispanic diet is beans, which are rich in polyphenols and other substances that enhance endothelial function, reduce oxidative stress and have antiatherogenic properties (Anderson et al., 2009; Colon et al., 2009). Overall, consumption of legumes such as beans is greater among Latin Americans compared to NLAW and African Americans, especially Mexican and Central American immigrants (Heer & Winham, 2020; Young & Hopkins, 2014). Individually, they consume up to five times more beans per capita than NLAW (31.4 lbs vs. 5.5 lbs per year, respectively). Intake of fruits also seems to be higher among Latin Americans compared to NLAW. Fruits are protective against many degenerative diseases and could in part account for the HHP (Batis et al., 2011). Diets high in fiber, therefore, may account in part for the HHP. This study was unable to include a diet analysis as Canadian Community Health Survey data related

to the consumption of fruits and vegetables was not available for all of the cycles considered in this dissertation (Statistics Canada, 2022).

Dual Frame of Reference

It has also been proposed that the main factor associated with greater Hispanic wellbeing is their dual point of reference. Suarez-Orozco and colleagues first posited this theory by suggesting that Latin Americans—particularly recent immigrant Latin Americans—tend to compare their new lives to the relatively harsher conditions of their home countries (1995). According to this theory, therefore, Latin Americans have a tendency of rating their well-being and health by comparing their relative quality of life between their host country and country of origin. This essentially creates a positive frame of reference—a protective factor—which buffers the risks of Latin Americans experiencing significant psychosocial stress typically associated with poorer health and well-being (Cutler et al., 2006). Moreover, it is hypothesized that this dual frame of reference works to create a sense of optimism for the future which also acts as a protective factor for Latin Americans (Doucet & Suarez-Orozco, 2006).

This dual frame of reference may indeed account to some degree for the HHP; however, there is some evidence to suggest that this is not true for all Latin Americans. For example, there is research indicating that children of immigrants and later generations are more likely to use their host country's societal standards as a reference point rather than their parent's country of origin (Gelatt, 2013). In a study of Latin American immigrant middle school children, for example, new immigrant children were more likely to compare their new life circumstances to their country of origin—and therefore more likely to have a positive view of their wellbeing—whereas first generation Latin American children were more likely to compare their new life circumstances to their American peers—and therefore more likely to have a less favourable view

of their wellbeing (Perreira et al., 2010). This suggests that age and years since immigration may be important factors to consider in any analysis of HHP.

Social and Cultural Factors

Social and cultural factors have been found to potentially protect individuals from adverse health outcomes. Such socio-cultural protections rely on strong social networks and Latin American dense neighbourhoods for support (Hernandez et al., 2022; Jones et al., 2018; Reyes, et al., 2020). As Fernandez and colleagues point out, socio-cultural factors provide an informal support mechanism which can shape individual risk and lifestyle behaviours (2023). As previously discussed, Latin Americans differ from other groups concerning smoking, alcohol consumption, and poor diets—behaviours typically associated with higher risk of disease. It is possible that such culturally influenced individual behaviours result in substantial health protections for Latin Americans.

For this reason, some have attributed the superior health of Latin Americans to protective factors associated with culture such as closeness to family (Escobar, 1998; Vega & Alegría, 2001). Culture has been defined as "all those things that people have learned to do, believe, value, and enjoy. It is the totality of the ideals, beliefs, skills, tools, customs and institutions into which each member of society is born" (Sue & Sue, 2008, p. 140). In Latin American culture, *familismo* is a term used to describe one's sentiment of interconnectedness, devotion, obligation, and loyalty to family (Leidy et al., 2010). *Familismo* implies that nuclear and extended family networks possess distinct strengths and resiliencies—such as loyalties, bonds, and assistance—that are exceptionally robust within Latin American families, especially among first-generation Latin Americans (Yanez et al., 2016). Typically, family members are expected to support one another and put the needs of the family above one's own (Fuligni, 2001). This has been observed

more for recent Latin American immigrants compared to later-generation Latin Americans, suggesting that this strong sense of *familismo* erodes over time because of greater exposure to North American culture; thus, leading to Latin Americans losing this important protective factor to their health and mental health (Perreira et al., 2010; Revollo et al., 2011).

Not surprisingly, family support as a form of social support, has been greatly studied, particularly in the context of health. It has been found to be a key protective factor of stress as demonstrated by higher levels of social support helping individuals cope with stressors more effectively; thus, protecting against the negative effects of stress on health (Garcini et al., 2020). In addition, the literature has consistently found that individuals with greater social networks experience decreased risk of mortality compared to individuals with lower quantity and quality of social relationships, even after statistically controlling for baseline health status (Berkman et al, 2000; Lo et al., 2019). Conversely, social isolation itself has been identified as a major risk factor for all-cause mortality (Lo et al., 2019). The literature also supports an association between social connection—in the form of neighbourhood or community connectedness—and better health and mortality (Carpiano & Hystad, 2011; Lochner et al., 2003; Wister & Wanless, 2007). This suggests that besides individual factors, community, or neighbourhood factors are important determinants of individual health and functioning.

There is ample research that reveals that Latin American dense neighbourhoods are advantaged on health outcomes despite similar at-risk profiles of other marginalized communities. For example, unlike the population density and health literature of African Americans, Latin American neighbourhoods experience better health despite similar risk factors associated with concentrated poverty (Haas et al., 2008; Palloni & Arias 2004; Williams et al., 2001). Moreover, it’s been observed that even rates of labour participation, intact family

structures, home ownership, and residential stability are relatively high in many disadvantaged Mexican American neighbourhoods not typically associated with other such segregated communities (Eschbach, 2004).

This phenomenon has been referred to as the "barrio (*neighbourhood*) advantage" amongst Latin American communities and appears to combat the negative health effects of ethnic segregation (Escobar et al., 2019). For instance, in their study, Eschbach and colleagues found that for older Mexican Americans, the negative effects of concentrated poverty were counterbalanced by protective factors associated with living in high density Latin American neighbourhoods (2004). The investigators compared morbidity and mortality rates in high-density and low-density Mexican American neighborhoods. They found that individuals residing in high-density neighborhoods had a 7-year longer survival rate and overall better health outcomes compared to those living in low-density neighborhoods. Such findings are consistent with other multiethnic studies for a variety of health outcomes and behaviours (Coreil et al., 1991; Lee & Cubbin, 2002; Palloni & Morenoff, 2001; Pearl et al., 2001).

To understand the protective factors associated with such barrio advantages for Latin Americans, considering Pierre Bourdieu's framework regarding forms of capital may be useful. For high density Latin American neighbourhoods, social, cultural, and human capital resources may act as protective factors which buffer the negative health effects of lower socioeconomic status (Aranda et al., 2011). According to Bourdieu, social capital refers to the benefits gained from social relationships (1990). Given the strong cultural belief in *familismo* discussed earlier, Latin American culture of strong family relationships may indeed lead to a robust network of social supports even within high poverty neighbourhoods (Adler & Kwon 2002; Lesser, 2000). Cultural capital is described as cultural norms and beliefs along with the process of creating

group boundaries (Aranda et al., 2011; Bourdieu, 1990; DiMaggio, 1982; Lamont & Lareau 1988). In this context, it is possible that Latin Americans create norms and boundaries to protect their culture and pass on to the next generation (Aranda et al., 2011; Portes & Zhou, 1993). Lastly, human capital is understood to be the ability to gain material resources generated from community knowledge, such as economic, educational, or health resources which increase one's likelihood for better socioeconomic positions (Aranda et al., 2011; Bourdieu, 1990).

Intersectionality and Health

Coined by Kimberlé Crenshaw (1989) in her Seminole essay *Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics,* intersectionality is the analysis and understanding of how race, class, gender, and other individual characteristics "intersect" with one another and overlap to shape individual unique experiences. Intersectionality is a lens that recognizes that health is not only shaped by individual characteristics or cultural or racial commonalities, but rather multi-dimensional overlapping factors such as race, class, income, education, age, ability, gender, immigration status, ethnicity, indigeneity, etc. As Bowleg (2021) asserts, intersectionality is an indispensable critical theoretical framework for public health. Without this framework, erroneous—nay, harmful—conclusions can be drawn on public health.

The "*We're all in this together!*" slogans of the COVID-19 pandemic, for example, dangerously alluded to a similar experience and impact across a host of diverse groups. However, US data indicated that Latin Americans were more likely to contract and die from COVID-19 compared to NLAW patients, even though they were younger and had lower comorbidity burden (Ricardo et al., 2022). According to Saenz and Garcia (2021), Latin Americans were 2 to 3 times more likely to die from COVID-19 compared to their NLAW

counterparts. According to US data by the Pew Research Center, higher rates of infection and death were highly associated with the socioeconomic and precarious employment conditions that required Latin Americans to work outside of the home and to the lower opportunities for proper isolation at work and at home (2021). Moreover, Latin Americans in the US are also less likely to be medically insured and lack access to high-quality health care than other racialized groups (Saenz et al., 2021). Even the greater life expectancy of Latin Americans in the US decreased by nearly four years from 2019 to 2020, rapidly diminishing the potency of the HHP (2021). Clearly, we were not "*all in this together*". It is absolutely essential, therefore, that researchers engage with an intersectional public health lens that highlights the heterogeneity of people's experience. Finally, as Fernandez and colleagues point out, the vast majority of the HHP literature has treated Latin Americans as a monolithic group, rather than taking into account the diversity of characteristics and different backgrounds of Latin Americans (2023). Disaggregating data, therefore, is a key step towards better understanding the Latin American health paradox experience.

Research Questions and Hypotheses

The purpose of the present study is to extend the existing racial health disparities literature by evaluating the generalizability of the Hispanic Health Paradox (HHP) in a sample of Latin American adults living in Canada. Specifically, the following research questions and respective hypotheses will be explored:

1) Does the existence of the HHP appear in health outcomes, mental health outcomes, and utilization of healthcare for Latin Americans in Canada?

   Hypothesis: The HHP will appear in Latin Americans in Canada as demonstrated by their equal to or better than expected health and mental health outcomes and by their consequent

lower health care use compared to non-Latin American whites and other racialized groups. This hypothesis will be tested across ten measures of health, mental health, and health care:

a) Diabetes
b) Self-Reported Health
c) Heart Disease
d) Cancer
e) Hypertension
f) Self-Reported Mental Health
g) Anxiety Disorders
h) Mood Disorders
i) Health Care Use
j) Mental Health Care Use

2) Is there are an interaction of Latin American ethnicity with gender, age, income, education, and immigration?

Hypothesis: Latin American ethnicity will interact with age, gender, education, income, and immigration to potentiate the protections afforded older individuals, men, those with low education, those with low incomes, and those who have most recently emigrated to Canada.

Note: Hypotheses 2 will be systematically replicated across the same 10 measures listed under Hypothesis 1.

Hypothesis number 2 was developed based on findings in the HHP and general public health literature. This interaction hypothesis is based on the literature pointing to greater protections for men, older individuals, those with low socioeconomic status, low education, and among the most recent immigrants (Escobar et al., 2020; Peters et al., 2020; Cutler &

Lleras-Muney, 2006; Stringhini et al., 2017; McDonald & Kennedy, 2004). These are discussed in further detail in the next chapter of this dissertation.

Chapter 3: Methodology

This study drew on the Canadian Community Health Survey (CCHS), the largest nationally representative survey of Canadian households (Siddiqi et al., 2016). Data were secondarily analyzed from four CCHS cycles between the years 2015 and 2018.

Secondary Data Analysis

In the current digital age that we live in, vast amounts of data are being collected and archived by researchers all over the world (Andrews et al., 2012; Johnston, 2014; Smith, 2008; Smith et al., 2011). The utilization of existing data for research is a prevalent and effective way to answer research questions which may otherwise be difficult—or even impossible—to answer when limited time and resources are a problem. Secondary data analysis is a research methodology using pre-existing statistical data. It is an empirical exercise that applies the same basic principles as research utilizing primary data that also follows a systematic process of data selection and analysis (Heaton, 2004; Johnston, 2014). Although secondary data analysis of quantitative data has grown substantially as the availability of pre-existing data has expanded, researchers in North America and Europe have been making use of this research method throughout the twentieth century (Heaton, 2004).

For instance, the first major text on secondary data analysis was published in 1972 entitled *Secondary Analysis of Sample Surveys: Principles, Procedures, and Potentialities* by Herbert H. Hyman. Since then, several other works have followed exploring different aspects of the methodology (Dale et al., 1988; Hakim, 1982; Stewart & Kamins, 1993). The possibility of secondary data analysis of qualitative data has also grown in recent years and several publications have been written since the 1990s by researchers who have carried out such innovative research (Heaton, 2004; Hinds et al., 1997; Mauthner et al., 1998; Szabo & Strang,

1997; Thompson, 2000) and by academics interested in these developments (Alderson, 2001). Undoubtedly, when good secondary data is available, scholars can explore answers to important research questions.

Of course, like all other research methodologies, secondary data analysis is not exempt from methodological limitations. Perhaps the most inherent limitation to secondary data analysis is that data were initially collected for some other purpose (Boslaugh, 2007). As a result, researchers may be restricted in their ability to explore or answer specific hypotheses. For example, data may not have been collected for a specific target population, geographic region of interest, or for a specific timeframe. In this case, there may be a lack of fit between the available data and the research questions of interest that can only be answered through primary data collection.

A second major limitation of utilizing secondary data is the problem of not having been present during measurement tool development and data collection processes; thus, a researcher may not know exactly how these processes were conducted. This, however, can be often resolved by the researcher finding this information in places such as documentation from the original study, information from published findings or technical reports, and consultations with the original researchers (Johnston, 2014). Ensuring, therefore, a match between research questions and available data can avoid limitations of secondary data analysis. Nonetheless, like primary research methods, secondary data analysis aims to contribute to scientific knowledge and provides an alternative method of doing so that can be equally rigorous and robust.

Description of Canadian Community Health Survey (CCHS)

The CCHS is a cross-sectional survey designed to collect information on health status, health care utilization, and health determinants of the Canadian population (Statistics Canada,

2022). The survey consists of three components: general content asked of all survey participants, optional content specific to each province's priorities, and rapid response content for specific health issues. The development of each content component of the CCHS questionnaire is a collaborative effort involving specialists from Statistics Canada, as well as experts from various federal and provincial departments and academic fields (2022). The CCHS was conceived after the 1991 National Task Force on Health Information which cited several issues with the health information system in Canada. In response, the Canadian Institute for Health Information, Statistics Canada, and Health Canada joined forces to create a Health Information Roadmap utilizing data gathered by the CCHS.

With this in mind, the primary use of the CCHS is for health surveillance and population health research in Canada. Initially the CCHS was designed to provide reliable estimates at the health region level every two years starting in 2001. Starting in 2007, however, data for the CCHS were collected annually instead of every two years (2022). Additionally, approximately 130,000 respondents were interviewed during the 2001, 2003, and 2005 CCHS cycles. This sample size was changed to 65,000 respondents each year starting in 2007. Response rates for the cycles have ranged from a high of 84.7% in 2001 to a low of 66.7% in 2013 (Veenstra et al., 2019).

CCHS Major Redesign

In 2012, Statistics Canada conducted a review of the CCHS's sampling methodology, survey content, and target population began. Consultations with federal, provincial, and territorial share partners, health region authorities, and academics were accomplished and the updated CCHS was implemented for the 2015 cycle. Prior to this redesign, researchers often combined several cycles of the CCHS to bolster sample sizes, particularly for racialized

populations who are often underrepresented (Ramraj et al., 2016; Sidiqui et al., 2016; Veenstra, 2019; Veenstra et al., 2019). As a result of the redesign which included a new collection strategy and major content revisions, Statistics Canada advised researchers to be cautious when comparing data from previous cycles to data released for the 2015 cycles onwards (Statistics Canada, 2022). For this reason, the present study will only be analysing the combined data from cycles 2015, 2016, 2017, and 2018 which were available to this researcher at the time of data analysis. Information around how data was obtained for all studied cycles will be presented further below.

Target Population and Sampling

The CCHS includes individuals 12 years of age and older living in the ten provinces and three territories of Canada (Statistics Canada, 2022). Persons living on reserves and other aboriginal settlements in the provinces, full-time members of the Canadian Forces, the Institutionalized population, children aged 12-17 living in foster care, and persons living in the Quebec health regions of Région du Nunavik and Région des Terres-Cries-de-la-Baie-James are excluded from the CCHS (2022). Altogether, these exclusions represent approximately 3% of the Canadian population aged 12 and older (Statistics Canada, 2022). The CCHS utilized stratified sampling using two different frames. A list frame using the Canadian Child Benefit (CCB) was constructed for individuals ages 12 to 17 (2022). For individuals 18 years and older, the sample was selected using the Labour Force Survey (2022).

Data Collection

Participation in the CCHS was voluntary for the selected cycles of this study (2015, 2016, 2017, & 2018) and took an average of 50 minutes to complete. Data were collected either through an electronic questionnaire or computer assisted telephone interviewing. Additionally, it

was available in both official languages (English and French). To remove language as a barrier to conducting interviews, each of the Statistics Canada Regional Offices recruited interviewers with a wide range of language competencies (Statistics Canada, 2022). When necessary, respondents were transferred to an interviewer with the language competency needed to complete an interview.

For individuals 18 years of age or older, a letter was mailed to the selected dwelling. The letter included a code which gave access to a preliminary online questionnaire. The survey asked that a household member access the questionnaire online with the given access code to answer some questions including all the people that reside in that dwelling. From this information, a household member aged 18 or older was then randomly selected to participate in the survey. An email containing a second code was sent to the selected respondent so that they could complete the survey (Statistics Canada, 2022).

For individuals aged 12 to 14, a letter is addressed to the parent or legal guardian of the child requesting survey participation from the targeted child. With consent from the legal parent or guardian, and provision of an email address, the child is then contacted to answer the questionnaire. Similarly, for respondents aged 15 to 17, a letter is sent to both the parent or legal guardian and to the youth. The youth does not need formal consent from the parent or guardian and can proceed with completing the questionnaire as soon as the letter is received. In both cases, the parent or guardian is then asked to complete a smaller portion of the questionnaire related to household variables such as household income, insurance, and food security. Follow-up calling, emailing, or texting occurs if a completed online questionnaire is not received within a certain period of time.

Data Accuracy

The majority of data editing occurred during the completion of the electronic questionnaire or the interview, facilitated by the computer-assisted interviewing application (Statistics Canada, 2022). This process prevented respondents and interviewers from entering values that fell outside the expected range, and flow errors were controlled through predefined skip patterns (2022). Consequently, questions that did not apply to the respondent were automatically skipped. Further, in cases where inconsistent or unusual responses were detected, warning messages were generated, but no immediate corrective action was taken during the questionnaire completion phase (2022). Instead, appropriate edits were designed to be implemented after the data collection process at the Statistics Canada head office (2022). To resolve inconsistencies, it was common practice to assign "not stated" values to variables in question (2022).

Moreover, throughout the data collection process, stringent control and monitoring measures were implemented to mitigate non-sampling errors, as highlighted by Statistics Canada (2022). These measures encompassed the evaluation of response rates, comprehensive assessment of reported and non-reported data, on-site observation of interviews, and the provision of enhanced collection tools to interviewers and other involved parties (Statistics Canada, 2022). Following the completion of processing steps, two data validation procedures were conducted. Firstly, a validation program was executed to compare the health indicator estimates derived from the common content with those of the previous year. This validation was carried out at various geographical levels, as well as across different age and gender groups. Substantial differences were subject to further scrutiny to identify any potential anomalies or irregularities in the data (Statistics Canada, 2022).

Data Access

Statistics Canada provides Public Use Microdata Files (PUMFs) to institutions and individuals (Statistics Canada, 2023). These files contain non-aggregated data that undergo meticulous modifications and thorough review processes by Statistics Canada employees to guarantee the absence of any direct or indirect identification of individuals or businesses (2023). This is the result of Statistics Canada being prohibited by law from releasing any information it collects that could potentially identify any person, business, or organization, unless consent has been given by the respondent or as permitted by the Statistics Act (Statistics Canada, 2022). Various confidentiality rules are applied to all data that are released or published to prevent the publication or disclosure of any information deemed confidential (2022). Thus, to preserve the privacy and confidentiality of respondents, not all variable data is made available until appropriate vetting and permission is granted through Statistics Canada. The central analytic purpose of the current study was to assess the health disparities of Latin Americans in Canada. The public microdata of the CCHS does not provide access to race/ethnicity data; thus, permission to the restricted microdata file was first obtained.

To obtain unrestricted microdata access of the CCHS, this researcher was required to connect with a Research Data Centre to begin an application process. These centres serve as secure physical facilities, granting authorized access to accredited data users and government employees for the purpose of retrieving deidentified and non-aggregated microdata intended for research endeavors (Statistics Canada, 2023). Research Data Centres are located on university campuses across Canada and are staffed by Statistics Canada employees (2023). In accordance with all the necessary regulations, all analysis was completed at the Research Data Centre at the University of Windsor and all released data presented in this study were first vetted and

approved for release by Statistics Canada (University of Windsor, n.d.).

Study Population and Sample Description

Respondents aged 18 or older were considered for the present study. The total sample size from the combined data of the 2015, 2016, 2017, and 2018 CCHS was 203,754. Three subsamples were devised: Latin Americans (n = 1,799), Whites (n = 168,225), and Other (n = 33,730).

Measures

Health Related Outcomes

A total of ten outcome measures were explored in this study: 5 physical health outcomes, 3 mental health outcomes, and 2 health care outcomes.

Self-Rated Health. Self-rated health is a common, valid, and reliable measure of general health status frequently used in general population surveys (Bombak, 2013; DeSalvo et al., 2006; Idler & Benyamini, 1997; Schnittker & Bacak, 2014). Self-rated health is typically measured as a single item and has been found to have validity in predicting help-seeking behaviours and health care use (Bowling, 2005; Miilunpalo, et al., 1997; Shields & Shooshtari, 2001). It is also associated with diverse risks and protections among general and vulnerable populations (Gonzales & Henning-Smith, 2017). Self-rated health was derived from the following CCHS question, *"In general, how is your health?"* Responses consisted of five categories: excellent, very good, good, fair, and poor. Moreover, the measure is often collapsed into a dichotomous variable of good versus less than good health to maximize its predictive validity (Mawani & Gilmour, 2010; Manor et al., 2000). This study also dichotomized self-rated health: poor or fair versus good to excellent.

Chronic Diseases

Four chronic diseases were identified for this study. In the CCHS, a disease was considered chronic if it was expected to persist or had already persisted for six months or more and was confirmed by a physician (Statistics Canada, 2022). In the CCHS, respondents were asked the following questions about each chronic disease:

Cancer. Respondents were asked, "Have you ever been diagnosed with cancer?"

Heart Disease. Respondents were asked, "Do you have heart disease?"

Diabetes. Respondents were asked, "Do you have diabetes?"

Hypertension. Respondents were asked, "Do you have high blood pressure?"

These variables all had dichotomous responses and, in all instances, a yes/no response was required.

Mental Health Related Outcomes

Self-Rated Mental Health. Although self-rated mental health is not a substitute for specific mental health measures, the literature indicates that it is potentially useful for monitoring general mental health (Ahmad et al., 2014; Mawani & Gilmour, 2010). Participants were also asked to rate their mental health as follows. *"In general, would you say your mental health is 1) Excellent 2) Very good 3) Good 4) Fair or 5) Poor."* The present study also dichotomized these responses. Respondents who self-rated their mental health as *excellent*, *very good*, or *good* were categorized as having "good mental health" and participants who self-rated their mental health as *fair* or *poor* were categorized as having "poor mental health".

Anxiety Disorders. Respondents were asked, "Do you have a mood disorder such as a phobia, obsessive-compulsive disorder or a panic disorder?"

Mood Disorders. Respondents were asked, "Do you have a mood disorder such as

depression, bipolar disorder, mania or dysthymia?"

These variables also had dichotomous responses and yes/no response were required.

Health Care and Mental Health Care Outcomes

Health Care Use. This variable was derived from an established measure of perceived access to health care—lacking a regular doctor (Hargraves & Hadley, 2003; Leiyu & Stevens, 2005; Sanmartin et al., 2006;). It's predictive and construct validities have been clarified by well documented associations with a host of risks and protections, demographic, socioeconomic and health factors (Babitsch, et al., 2012). This variable was dichotomous, and respondents reported whether or not they had a regular doctor within the past year.

Mental Health Care Use. This variable was derived from the CCHS question, "*Consulted with a mental health professional in the past year*"? This variable was dichotomous, and respondents reported whether or not they had consulted with a mental health professional in the past year.

Main Predictors

Ethnicity. Ethnicity was chosen as the centrally hypothesized predictor based on previous research showing that Latin Americans experience better than expected health despite higher risk factors in comparison to NLAW (Siddiqi et al., 2016; Veenstra & Patterson, 2016; Waidmann & Rajan, 2000; Ward et al., 2004). In the CCHS, race was self-reported and based on the question: *People living in Canada come from many different cultural and racial backgrounds. Are you: White? Chinese? South Asian? Black? Filipino? Latin American? Southeast Asian? Arab? West Asian? Japanese? Korean? Other?* As the centrally hypothesized predictor, ethnicity was collapsed into two main categories: Latin Americans and whites. To make use of all available data, an additional category was also created in which all racial groups except whites and Latin

Americans were collapsed to provide an estimate for “other racialized groups”, which is typically the administrative grouping used in Canada (Siddiqi et al., 2016). The referent for racial comparisons was whites.

In the interest of intersectionality, other established predictors of health and or health care utilization were included. Their inclusion allowed for estimation of the independent contribution of Latin American ethnicity as well as for exploration of the potential moderation of its effects across their strata.

Age. Age is an important variable that should be accounted for in health research as it is a significant determinant of health outcomes. As people age, they are more likely to develop chronic health conditions such as diabetes, heart disease, and cancer (Westermann et al., 2012). Therefore, controlling for age helps to ensure that differences in health outcomes between groups are not simply due to differences in age. Respondents in the CCHS were asked to identify their age and responses were coded continuously. In the present study, age was recoded into four categories (18 to 24; 25 to 44; 45 to 64; and 65 or older) to ensure that they were representative of different stages of life with distinct predisposing characteristics, while also ensuring that each group had an adequate number of respondents (Reijneveld, 2003). The referent age of comparison was 18 to 24.

Sex. The academic literature has identified sex differences in various aspects of health, including differences in the incidence, presentation, progression, and management of various conditions. For example, men are more likely to develop cardiovascular disease at an earlier age than women, but women have a higher risk of developing cardiovascular disease after menopause (Peters et al., 2020; Anand et al., 2016). Women may also have different symptoms of heart disease than men, which can make diagnosis more challenging. Furthermore, some types

of cancer are exclusive to men, such as prostate, while others are more common in women, such as breast cancer (Siegel at al., 2017; Ferlay et al., 2013). Even in mental health, important sex differences have been found. For example, women are more likely to experience depression and anxiety than men (Bromberger et al., 2013). However, men are more likely to die by suicide (Freeman et al., 2017).

In the CCHS, sex was listed as a dichotomous variable with two categories: male or female. Responses were derived from the following question: "What was your sex at birth?" The referent sex comparison group was female. Strictly speaking, this measure of sex is a biological construction. This study theorizes, however, that any gender divide (e.g., additional paradoxical protections afforded Latin American men versus women) is likely due to social forces, rather than biological differences.

Education. Research has consistently shown that higher levels of education are associated with better health outcomes across a range of measures. Individuals with higher levels of education tend to have lower rates of mortality, morbidity, and disability, as well as better self-reported health and quality of life (Cutler & Lleras-Muney, 2006). Education was taken into account and derived from respondents reporting their highest level of education on the CCHS. Six categories were created based on the following: Primary school or less; some high school; high school graduate; some postsecondary; undergraduate degree; and graduate degree. The referent education group was primary school or less.

Income. As previously discussed in Chapter 2, the literature indicates that socioeconomic status (SES) is associated with health outcomes (Wang & Geng, 2019), with individuals from lower SES backgrounds experiencing worse health outcomes across a range of measures. For example, individuals from lower SES backgrounds tend to have higher rates of mortality,

morbidity, and disability, as well as lower levels of self-reported health and quality of life (Stringhini et al., 2017). Respondents in the CCHS were asked to indicate their annual household income based on seven categories ranging from less than $50,000 to more than $150,000. Consistent with other research utilizing the CCHS, this was recoded into income quintiles so that approximately 20% of the sample was in each group (Pichora et al., 2018; Siddiqi et al., 2016). Categories were created as follows: Less than $30,000; $30,000 to $59,999; $60,000 to $99,999; $100,000 to $149,999; and $150,000 or more. The referent income comparison group was less than $30,000.

Immigration Status. As previously discussed regarding the Healthy Migrant Effect (HME), recent immigrants generally have better health outcomes than long-term immigrants and native-born populations (Elshahat et al., 2022; Newbold, 2006; Osypuk, 2015; Vang et al., 2017). Generally, recent immigrants have better self-reported health, lower rates of chronic diseases such as heart disease and diabetes, and lower mortality rates compared to long-term immigrants and native-born populations (McDonald & Kennedy, 2004). However, the health advantages of recent immigrants may diminish over time as they acculturate to their new environment and adopt the health behaviors and risks of the host population (Antecol & Bedard, 2006).

The CCHS asked respondents to identify whether or not they were landed immigrants to Canada (yes/no). In addition, those who identified as landed immigrants were asked to identify how long they had been in Canada. These two questions (immigrant status and length of stay) were used to derive the immigration status variable in this study. It was important to include data from all Latin Americans and not just Latin American immigrants, but also include Canadian-born Latin Americans to better explore proposed hypotheses. Like other research, immigration

status was stratified based on the following categories: Canadian-born; 10 or more years; 5 to 10 years; and less than 5 years since landing (McDonald & Kennedy, 2004; Newbold, 2009; Siddiqi et al., 2009). The referent immigration status comparison group was Canadian-born.

Official Language Knowledge. Language proficiency has long been identified as a barrier to health care access and service utilization for immigrants and refugees (de Moissac & Bowen, 2019; Fuller-Thompson et al., 2011; Pandey et al., 2021). The CCHS asks participants to identify whether or not they have knowledge of Canada's official languages (English or French). Responses were dichotomous (yes/no) and the referent comparison group was "yes".

Covariates

When "third variable" covariates are not appropriately accounted for, they may be unequally presented in respective key study and comparison groups; thus, confounding results (Skelly et al., 2012). In other words, any differences between groups on the outcome variable might very well be the result of an uncontrolled confound, and proper interpretation of study findings may be compromised. Potential confounds were accounted for in the present study. Multiple theoretically informed and hypothesized confounds were examined including marital status, sense of community belonging, body mass index (BMI), physical activity, smoking, alcohol consumption, and CCHS cycle. To determine whether a variable was potentially confounding, it had to be significantly associated with the centrally hypothesized predictor (ethnicity) and the outcome in bivariate analysis. These met the minimum definition of an analytic confound and were included in the subsequent multivariate analysis. The inclusion of such covariates provided an additional analytic advantage in this study. As a number of them are essentially proxies for social, cultural, and lifestyle factors that have been advances as potential

explanations for the HHP in the US, their inclusion in this study may provide clues about their explanatory power in the Canadian context.

Marital Status. The literature on health and mortality by marital status has consistently identified that the married generally report better health and have lower mortality rates than the single, the widowed, or the divorced, with men being particularly affected (Kim et al., 2018; Robards et al., 2012; Wang et al., 2020). In the CCHS, marital status was defined as a categorical variable: married, common-law, single-never married, widowed, separated, or divorced). Several previous studies grouped married and common-law into one category (Siddiqi et al., 2016; Wang & Kwak, 2015) and grouped separated and divorced individuals into one category (Lebrun & Dubay, 2010; Ravichandiran, 2020). For this study, four categories were included: single never married, separated or divorced, widowed, and married/common-law. The referent for marital status comparison group was single never married.

Sense of Community Belonging. Research indicates that individuals who report ties to community experience lower rates of disease and mortality compared to individuals without such links even after controlling for differences in socioeconomic status, health behaviours, and use of health care services (Kitchen et al., 2012; Ross, 2002). This appears to be particularly true for Latin Americans. In the US, Latin American neighbourhoods are often advantaged on health outcomes despite similar at-risk profiles of other marginalized communities. Unlike the health literature of African Americans neighbourhoods, for example, Latin American neighbourhoods appear to experience better health despite similar risk factors associated with concentrated poverty or violence (Haas et al., 2008; Palloni & Arias 2004; Williams et al., 2001).

To assess the impact of community on health, researchers have often used a measure related to sense of community belonging (Carpiano & Hystad, 2011; Wister & Wanless, 2007).

The CCHS assessed sense of community belonging by asking respondents "How would you describe your sense of belonging to your local community?" The response set consisted of four categories: Very strong, somewhat strong, somewhat weak, and very weak. These same categories were utilized in the present study and the referent for sense of community belonging was "very weak."

Body Mass Index (BMI). A large body of research indicates that BMI is a significant predictor of health, with individuals considered overweight and obese at greater risk of cardiovascular and musculoskeletal diseases, reduced life-expectancy, and poorer mental health (Di Angelantonio et al., 2016; Friedemann et al., 2012; Ul-Haq et al., 2013). On average, Latin Americans have a lower obesity rate compared to NLAW. However, the age-adjusted percentage of Latin American obesity was slightly higher compared to NLAW (45% and 42%, respectively; Hales et al. 2020). Furthermore, some research suggests that obesity is highest among Mexicans and Puerto Ricans (Isasi et al., 2015). Troublingly, obesity appears to be a growing problem in Latin American communities, as observed by obesity rates increasing as time spent in the US increases (Ai et al., 2018).

This study, therefore, included BMI as a potential confounding and or explanatory variable in its analysis. The CCHS calculated BMI based on respondent's self-reported age, sex, and height. Initially, this was recoded into four categories: Underweight (below 18.5 kg/m^2), healthy weight (18.5 to 24.9), overweight (25.0 to 29.9), and obese (30.0 or greater) consistent with both Canadian and American body weight classifications (Health Canada, 2019; CDC, 2022). Initial descriptive analysis, however, revealed that the extremely small underweight category lacked statistical power; thus, underweight and normal weight were regrouped into a single category and the remaining two categories were kept intact. The BMI categories in this

study were, therefore, as follows: healthy weight (below 25.0 kg/m^2), overweight (25.0 to 29.9), and obese (30.0 or greater). The referent BMI comparison group was “healthy weight”.

Physical Activity. The literature is clear on the health benefits of regular physical activity. The evidence points to overwhelmingly significant risk reductions of at least 10% to 30% for more than 25 chronic medical conditions and premature mortality (Warburton & Bredin, 2016; Warburton et al., 2010). The CCHS asked respondents to indicate the number of days per week they were active as a continuous variable from 0 to 7 days. This was recoded into a categorical variable as follows: None, 1 to 3 days, 4 to 5 days, and 7 days. The referent physical activity comparison group was none.

Smoking. The risk of cigarette smoking on health is well documented in the literature. (Mucha et al., 2006; Pilar et al., 2020). It has been consistently associated with conditions such as cancer, cardiovascular disease, lower mortality, and higher life expectancy among Latin Americans (Fernandez et al., 2023). This is in part because Latin Americans are less likely to smoke compared to other groups. The Latin American daily smoking rate is 8.0% compared to 27.1 % among NHLW (Cornelius et al., 2022).

Additionally, important differences have also been found within the Latin American population whereby Puerto Ricans and Cubans are more likely to smoke compared to Mexicans, Dominicans, and Central Americans (Kaplan et al. 2014; Martell et al., 2016). In addition, Latin American immigrants have lower smoking rates than individuals in their home country and Latin Americans in the US (Bosdriesz et al. 2013). This variable was therefore taken into account and derived from the CCHS question “At the present time, do you smoke cigarettes every day, occasionally or not at all? The same categories were kept in the present study: daily, occasionally, and not at all. The referent smoking comparison group was “not at all.”

Alcohol Consumption. Excessive drinking has been identified as an important risk factor for illness, disability, and mortality (Rehm et al., 2009). Further, it is significantly associated with increased incidence of numerous medical conditions, including certain cancers (Ekwueme et al., 2017; Peng et al., 2016), cardiovascular disease (Mahajan et al., 2018; Ricci et al., 2018), cirrhosis of the liver and pancreatitis (Guirguis et al., 2015; Samokhvalov et al., 2015), and gastrointestinal disorders (Au et al., 2007; Lembke et al., 2011). US data indicates that Latin Americans are less likely to drink alcohol compared to NLAW (Fernandez et al., 2023). Moreover, according to the National Institute on Alcohol Abuse and Alcoholism, 70% of NLAW report one drink in the past year compared to 54% of Latin Americans (2021). Yet, Latin Americans are more likely to binge drink (42%) than NLAW (32%; 2021).

Similar to smoking, there are important differences within the Latin American population on alcohol consumption. For example, Puerto Ricans have the highest prevalence of drinkers, binge drinkers, and individuals with alcohol dependence, while Cubans report the lowest percentage across all categories (Fernandez et al., 2023). As such, alcohol consumption was accounted for in this study's analysis. Respondents in the CCHS were asked to identify the type of drinker that they perceived themselves to be based on three categories: Regular drinker, occasional drinker, or did not drink in the last 12 months. The referent comparison group was "non-drinker".

CCHS Cycle. This was simply the year that the data were collected.

Interaction Terms

To observe whether the predictive associations of Latin American ethnicity (versus others) with the 10 outcomes were moderated by other established predictors, five interaction terms were computed (ethnicity x other predictor). They were the following five two-way

interactions: ethnicity by age, ethnicity by gender, ethnicity by education, ethnicity by income, and ethnicity by immigration status.

Analytic Plan

Descriptive Statistics

Univariate frequency distributions were used to describe the study sample. Given that all outcome variables were binary and that all predictor variables—centrally hypothesized as well as covariates—were categorical, examination of parametric assumptions with diagnostic descriptive statistics (means, medians, standard deviations and measures of skewness, kurtosis and their standard errors) were moot.

Bivariate Analysis

Nonparametric chi-square tests were used to test the associations between the following:

- ethnicity with all predictors and covariates
- ethnicity with all of the outcomes.

The statistical significance criterion throughout was a two-tailed test at an α of 0.05 ($p < .05$).

Multivariate Analysis

Logistic regression models tested all hypotheses across all ten outcomes. Logistic regressions were preferred because the outcome variables were all dichotomous (Harrell, 2015; Hosmer et al., 2013; Kleinbaum & Klein, 2010; Vittinghoff et al., 2012). Multivariable analyses began by testing the associations between all of the predictors, be they established predictors or other covariates with ethnicity and all of the outcomes. This allowed for complex descriptions of the participants, Latin American's and other's, life spaces as well as for the identification of potential confounds. Nearly all of the predictors were significantly associated with ethnicity and all of the outcomes, and so were deemed potentially confounding/explanatory. Therefore, they

were included in the logistic regression models. Each of the 10 logistic regression models series—one for each outcome—was built in the following manner:

1. Ethnicity was entered as the lone predictor in Model 1. This model explored the unadjusted association between ethnicity and the outcome.
2. Other main predictors and or potential moderators of the outcome (i.e., age, sex, education, income, immigration status, and language) were entered in Model 2. This model allowed for the estimation of the independent association of ethnicity with the outcome variable controlling for other well-known risk (or protective) factors.
3. Potentially confounding and or explanatory covariates were entered in Model 3. This model aimed to provide some measure of control for health status differences between the study groups (primarily between Latin American and White Canadians), and potentially begin to explain some of the hypothesized Latin American health advantages.
4. The five hypothesized 2-way interactions were tested in Model 4. If an interaction was significant it remained in the model. Otherwise, it was removed.

Logistic regression modeling principles and interpretations. Further principles of logistic regression modeling that were followed in this study and their interpretations follow.

First, the statistical and practical significance or strength and precision of the predictor-outcome relationships were estimated with odds ratios (OR) and their 95% confidence intervals (CIs) that were derived from regression statistics ($OR = e^{\beta}$ and $CI = e^{\beta +/- 1.96(SE)}$). A 95% CI that did not include the null value of 1.00 indicated that the observed association was statistically significant ($p < .05$). It should also be noted that variable categories were coded so that ORs > 1.00 were indicative of relative risks while ORs < 1.00 indicated relative protections from undesirable outcomes. For example, an OR of 0.50 corresponding to the Latin American versus

White Canadian participants' differences on diabetes could be interpreted as follows: The odds, chances, or likelihood of having diabetes was 50% lower among Latin Americans in comparison to non-Latin American White people.

Second, significant interactions were depicted in the text. That is, ORs were reported within strata. For example, suppose a significant 2 x 2, ethnicity by gender interaction was detected on diabetes diagnosis. Significantly different ORs indicative of the ethnicity-diabetes association would be reported within each gender strata. For example, suppose that the analysis produced the following results: The association of ethnicity (Latin Americans versus others) with diabetes among men was characterized by an OR of 0.50 (relative protective fraction of 50%), but among women the same ethnicity-diabetes association was characterized by an OR was 0.75 (relative protective fraction of 25%). It would indicate that the paradoxical Latin American protective effect was significantly larger among Latin American men. Though it would also suggest a substantial, practically significant protective effect for Latin American women.

Third, although parametric assumptions are not relevant with logistic regressions, multicollinearity should still be ruled out. Because there were no continuous variables in any model, multicollinearity seemed highly unlikely. Still, all of the categorical predictors' (ethnicity, other centrally hypothesized predictors and covariates) associations with each other were calculated (χ^2) and then converted to another measure of association, Pearson's correlation coefficient ($r = [\chi^2/ N]^{1/2}$, Cooper, 2017). The strongest association observed was quite modest ($r = 0.34$). The corresponding coefficient of determination (r^2) was 0.11, meaning that only 11% of the variance of those two predictors was overlapping. Most of the others were much smaller. Clearly, multicollinearity appeared to be a nonissue; the predictors under study represented

largely independent, non-overlapping constructs. Finally, all analyses used SPSS, Version 28.0 (IBM Corporation 2018).

Power Analysis

Since this study conducted secondary analyses of an available sample to answer several research questions, statistical power calculations were completed *post hoc* using G*Power software (Cohen, 1988; Faul et al, 2007; 2009; 2013). Assuming the ability to detect relatively small associations (OR = 0.80 or 1.20), a significance level of 0.05, and this study's sample size of 203,754, the power was approximately 0.999 or 99.9%. Essentially, this meant there was very little threat of sampling error and that, from a statistical standpoint, there was much confidence in this study's statistically significant and null findings. Moreover, the conventional threshold of $p < .05$ carried limited significance in this regard, as the focus was primarily on assessing the practical relevance of the reported ORs and their corresponding CIs, which indicated their relative size and precision.

Missing Data

Missing data was nearly non-existent in all outcomes, hypothesized predictors, and covariates (all < 2.0%), with the exception of physical activity (3.1%), sense of community belonging (3.8%), and BMI (6.3%). With such minimal missing data, it is unlikely that it confounded any of the ten central analytic series. Nonetheless, three missing data strategies were implemented to test the potential impact of missing data: listwise deletion, means substitution, and multiple logistic regression-based imputations using all of this study's variables. Analyses were run with each of these three strategies using diabetes as the test outcome analysis. The statistical and practical significance of their findings were nearly identical (see Table 10, Appendix A, and Appendix B). In addition, missing data probably could not have confounded

any of the 10 central analytic series, as Little's missing completely at random (MCAR) χ^2 test was null for each of them (Little, 1988).

Chapter 4: Results

Bivariate Analysis

Between group differences of demographic and socioeconomic descriptors, potential explanatory variables, and outcomes by ethnicity (Tables 1 through 9) were analysed using chi-square tests with the statistical significance criterion of a two-tailed test at an α of 0.05 ($p < .05$).

Bivariate Analysis of Demographic and Socioeconomic Descriptions by Ethnicity

All of the between-racialized/ethnic identity group differences on sociodemographic characteristics were statistically significant except for gender, meaning that some statistically significant difference was observed between at least two of the three groups (Latin American, NLAW, and others). These are displayed in Table 3. As most predictor variables were significantly associated with ethnicity, this can help us advance our knowledge about the diversity of Latin American peoples in Canada.

Age

After implementing the age restriction to participants 18 years of age and older, the study sample for this secondary analysis was 203,754. As previously discussed, three subsamples were comprised by these racialized/ethnic identities: Latin Americans (1,799), NLAW (16 8,225), and other racialized groups (33,730). The Latin American subsample was comparatively younger with nearly two thirds of the sample (62.8%) aged 18 to 44 years of age, compared to NLAW (31.9%), and other racialized groups (52.0%) of the same age range (Table 3). Similarly, Latin Americans represented only 9.7% of individuals aged 65 years and older, compared to NLAW (33.2%), and other racialized groups (17.5%). This wide age-divide is not uncommon in making Latin American-NLAW comparisons. And given the intimacy of age-health relationships, age is

clearly a factor that must be accounted for in any multivariable analyses involving the health or health care of Latin American, NLAW and any other ethnic groups. It was in this study.

Gender

All subsamples had a slightly greater representation of women. As previously noted though, the Latin American (53.6%) and other subgroups (53.6%) as well as the NLAW subgroup (54.3%) did not differ significantly on gender.

Education

The Latin American study participants generally reported greater educational attainment with more than a third of them (36.9%) having either an undergraduate or postsecondary advanced degree compared to NLAW (21.5%) and other racialized group members (30.2%). Furthermore, Latin Americans were significantly less likely (9.5%) than were NLAW (16.1%) or other racialized peoples (14.5%) to have achieved less than a high school diploma. Such are probably functions of Canadian immigration policies as well as, perhaps, relatively health immigrant effects. Again, this important characteristic will need to be (and was) accounted for in all of this study's multivariable analyses for it's potentially predictive, confounding, and or explanatory influences.

Income

Despite their relatively advantaged educational achievements, Latin Americans were more likely (20.1%) than their NLAW counterparts to report relatively low incomes, that is, annual household incomes of less than $30,000. While at the other end of the economic spectrum, Latin Americans (11.8%) were significantly less likely than were NLAW (14.6%) to report household incomes of $150,000 or more. Generally, the income distribution of other racialized/ethnic group members was much more like that of the Latin Americans than the

NLAW. As with education, the analytic interest of this measure for this study's, more complex analyses, is clear.

Years Since Immigration

Overall, Latin Americans were less likely to be born in Canada (24.8%) in comparison to NLAW (90.9%) and other racialized group members (51.5%). Additionally, Latin Americans were much more likely to be relatively recent immigrants to Canada, whether respectively defined as having emigrated less than five years ago or between five and ten years ago (11.2%

and 14.5%) compared to NLAW (0.4% and 0.5%) and other racialized/ethnic groups (8.2% and 8.2%). Again, these are important between-group differences with clear analytic implications.

Knowledge of Official Language

The majority of all the study groups reported knowledge of one or both of Canada's official languages (English or French). Perhaps not surprisingly, fewer of the Latin Americans (96.5%) reported such knowledge than did the NLAW (99.8%).

Table 3
Bivariate Analysis of Demographic and Socioeconomic Descriptions by Ethnicity (N= 203, 754)

	Valid Percentage Distributions		
	Latin American n = 1,799	White n = 168,225	Other n = 33,730
Age*			
Emerging adults (18 to 24)	11.3	6.1	11.1
Adults (25 to 44)	51.5	25.8	40.9
Older adults (45 to 64)	27.5	34.9	30.2
Seniors (65 or older)	9.7	33.2	17.5
Gender			
Female	53.6	54.3	53.6
Education*			
Primary or less	3.3	5.7	5.3
Some high school	6.2	10.4	9.2
High school graduate	21.9	23.9	22.3
Some postsecondary	31.7	38.6	33.1
Undergraduate degree	25.7	14.8	19.9
Advanced degree	11.2	6.7	10.3
Income*			
Less than $30,000	20.1	17.9	24.2
$30,000 to $59,999	26.0	26.0	26.0
$60,000 to $99,999	25.9	24.6	22.3
$100,000 to $149,999	16.2	16.9	14.8
$150,000 or more	11.8	14.6	12.6
Years since immigration*			
Canadian born	24.8	90.9	51.5
More than 10 years	49.5	8.1	31.7
5 to 10 years	14.5	0.5	8.2
Less than 5 years	11.2	0.4	8.2
Official Language(s) Knowledge*			
Yes	96.5	99.8	97.1

[a] Data for all variables was less than 2.0% missing.
* Pearson's χ^2 test, $p < .05$.

Province of Residence

Descriptions of the province or territory of residents of the sample are displayed in Table 4. The majority of all the participants reported residing in either Ontario or Quebec. Specifically for Latin Americans, nearly two thirds reported either an Ontario (31.9%) or Quebec (28.7%) residence. Beyond these two provinces, significant proportions of Latin Americans reported residing in Alberta (16.2%), British Columbia (13.9%), and in other provinces or territories (9.3%).

Tables 4

Bivariate Analysis of Province of Residence by Ethnicity (N = 203, 754)

	Valid Percentage Distributions		
	Latin American n = 1,799	White n = 168,225	Other n = 33,730
Province or Territory*			
Ontario	31.9	29.5	33.0
Quebec	28.7	23.7	12.4
Alberta	16.2	11.6	13.7
British Columbia	13.9	12.4	19.0
Other Provinces/Territory	9.3	22.8	21.9

[a] Missing data was less than 2.0% missing.

* Pearson's χ^2 test, $p < .05$.

Place of Birth among Latin Americans

To further advance descriptive life space knowledge about diverse Latin Americans in Canada, a univariate frequency distribution of their places of birth is displayed in Table 5. This Canadian sample of Latin Americans was primarily South American (42.1%), with Colombia being their most common place of birth (15.3%). Next, nearly a quarter of Latin Americans reported Central American origins (22.3%), with Salvadorians comprising one of every ten of the total sample of Latin Americans in Canada. Canadian-born (16.7%) and Mexican-born (13.3%) Latin Americans were also well represented.

Table 5
Place of Birth Descriptors of Latin American Sample

	Valid Percentage Distribution of Latin Americans (n = 1, 799)	
	Sample Size	Valid Percent
Place of birth		
Other South America	360	20.0
Canada	300	16.7
Colombia	275	15.3
Mexico	239	13.3
Other Central America	227	12.6
El Salvador	174	9.7
Brazil	122	6.8
Europe	36	2.0
United States	32	1.8
Other	32	1.8

Note: No missing data.

Bivariate Analysis of Potential Explanatory Variables

Between group differences were analysed using chi-square tests with the statistical significance criterion of a two-tailed test at an α of 0.05 ($p < .05$) and are displayed on Table 6. Other covariates and potential explanatory variables in this analysis were all statistically significant. As each covariate was significantly associated with ethnicity, any that were also significantly associated with an outcome may be confounding and so were accounted for in multivariate analyses. Of course, these comparisons also further our understanding of Latin American people in Canada.

Marital Status

As shown in Table 6, more than half of Latin Americans reported being married or in a common-law relationship (55.5%). This was very similar to NLAW (55.4%) and other racialized groups (54.9%). In addition, Latin Americans were more likely to report being separated or divorced (14.3%) compared to NLAW (12.7%) and other racialized groups (10.2%). Consistent with the previously noted between study group age differential, Latin Americans were also more likely to report being single and never married (26.9%) than were NLAW (21.3%). Relatedly and finally, the representation of widows or widowers was lower among Latin Americans (3.4%) than among NLAW (10.6%), or other racialized group members (5.6%).

Sense of Community Belonging

Overall, this study's sample expressed a relatively high sense of community belonging, with more than two thirds of all three study groups reporting a *somewhat strong* or *very strong* sense of community belonging. Of the three, however, Latin Americans were less likely to express a *somewhat strong* or *very strong* sense of community belonging (62%) than were NLAW (69.5%) or other racialized group members (69.4%). Similarly, at the other end of the

belongingness spectrum, Latin Americans were more likely to express a *very weak* sense of community belonging (9.9%) than were NLAW (7.5%) or members of other ethnicities (8.4%).

Physically Active Days

This study's sample of participants was also, generally, quite active—more than half of them reported being physically active four to seven days a week. Importantly though, Latin Americans were significantly more likely to report such consistent physical activity (57.3%) than were the other study group members: NLAW (50.0%), and others (50.8%). Perhaps of most practical and theoretical importance, Latin Americans were the least likely to essentially report a sedentary lifestyle, that is to be inactive all seven days of the week (16.5%). Both the NLAW (23.6%) and other ethnic study groups (23.5%) were about seventy percent more likely to report such inactivity.

Body Mass Index

More than half of the total sample reported being either *obese* or *overweight*. Nearly sixty percent of NLAW (59.4%) reported being either *obese* or *overweight*, closely followed by Latin Americans (57.1%). Others were less likely to report being *obese* or *overweight* (51.8%) and so more likely to report *healthy weight* (48.3%). Latin Americans (19.6%) and other racialized/ ethnic group members (19.5%) were less likely than NLAW people to report being obese.

Table 6

Bivariate Analysis of Potential Explanatory Variables

	Valid Percentage Distributions		
	Latin American n = 1,799	White n = 168,225	Other n = 33,730
Marital status*			
Single never married	26.9	21.3	29.2
Separated or divorced	14.3	12.7	10.2
Widowed	3.4	10.6	5.6
Married or common-law	55.5	55.4	54.9
Sense of community belonging*			
Very weak	9.9	7.5	8.4
Somewhat weak	28.1	23.0	22.2
Somewhat strong	43.4	50.2	48.7
Very strong	18.6	19.3	20.7
Physically active days per week*			
None	16.5	23.6	23.5
1 to 3 days	26.1	26.4	25.6
4 to 6 days	30.8	24.1	23.7
7 days	26.5	25.9	27.1
BMI*			
Healthy weight	42.9	40.6	48.3
Overweight	37.5	35.4	32.3
Obese	19.6	24.0	19.5
Smoking*			
Not at all	86.4	81.3	79.5
Occasionally	7.2	4.3	5.8
Daily	6.4	14.5	14.7
Alcohol consumption*			
None	18.1	18.1	32.9
Occasionally	20.0	16.4	20.2
Regularly	61.9	65.4	46.9

Notes: Missing data was less than 2.0%, except for community belonging (3.8%), physical activity (3.1%) and BMI (6.3%). * Pearson's χ^2 test, $p < .05$.

Smoking

Much of the total sample reported not smoking at all, with 86.4% of Latin Americans so reporting compared to 81.3% of NLAW and 79.5% of other racialized group members. Furthermore, Latin Americans were also less likely to smoke occasionally or daily (13.6%) than were NLAW (18.8%) or other racialized ethnic group members (20.5%). Further, reports of daily smoking was more than twice as prevalent among NLAW (14.5%) and study participants of other ethnicities (14.7%) than it was among the Latin American participants (6.4%).

Alcohol Consumption

In contrast to the reported low levels of smoking in this sample, reported alcohol consumption was quite high across all study subsamples, particularly so among Latin Americans (61.9%) and NLAW (65.4%), two-thirds of whom reported drinking on a regular basis. Perhaps due to religious affiliations, less than half of the other racialized ethnic group members (46.9%) consumed alcohol regularly. Relatedly, people of ethnic backgrounds other than White or Latin American were not only less likely to consume alcohol on a regular basis, but they were also nearly twice as likely to report not consuming alcohol at all (32.9%) than were either Latin Americans or NLAW (18.1% each).

Bivariate Analysis of Outcomes by Ethnicity

Physical Health Outcomes

A comparison of ethnicity with all physical health outcomes studies revealed several salient, statistically significant findings in support of the Hispanic Health Paradox (HHP) using chi-square tests with the statistical significance criterion of a two-tailed test at an α of 0.05 ($p < .05$). Latin American ethnicity was observed to be significantly associated with better overall health across all five physical health outcomes (Table 7). Although the central analytic plan was

to explore the HHP through Latin American-NLAW comparisons, analytic inclusion of an aggregated, 'other ethnicities,' study group provided further interesting and important comparisons. First, Latin Americans were the most likely to self-rate their health status as excellent (21.7%). Second, Latin Americans were also the least likely to self-rate their health status as poor (2.1%). Third, Latin Americans were the least likely to have ever had cancer (3.5%) or to have been diagnosed with diabetes (4.6%), hypertension (10.8%), or heart disease (2.4%). In most instances, the prevalence of each of these diseases was approximately two to three-fold greater among both the NLAW and other ethnicities study groups. Fourth and finally, it is important to note that in the general paradoxical pattern, Latin Americans seemed to stand alone. The members of other ethnicities tended to have health outcomes that were significantly worse than those of Latin Americans and or on par with those of NLAW people.

Mental Health Outcomes

A comparison of ethnicity with all mental health outcomes also revealed statistically significant findings in support of the HHP using chi-square tests with the statistical significance criterion of a two-tailed test at an α of 0.05 ($p < .05$). Latin American ethnicity was observed to be significantly associated with better mental health across all three mental health outcomes (Table 8). For example, Latin Americans were more likely to self-rate their mental health as *very good* or *excellent* (54.4%): NLAW (51.9%) or others (49.7%), and Latin Americans were less likely to self-rate their mental health as fair or poor (6.0%): NLAW (7.6%) or others (8.2%). Latin Americans were also the least likely to report either a diagnosed anxiety disorder (6.9%) or mood disorder (6.9%). Finally, NLAW people were about seventy percent more likely to report either diagnosis, the prevalence of such reported mental health conditions among the members of other ethnic groups being approximately midway between Latin Americans and NLAW.

Table 7
Bivariate Analysis of Health Outcomes by Ethnicity

	Valid Percentage Distributions		
	Latin American n = 1,799	White n = 168,225	Other n = 33,730
Self-Rated Health*			
Excellent	21.7	18.4	19.3
Very good	32.8	34.9	32.4
Good	31.0	30.8	32.0
Fair	12.4	12.9	13.2
Poor	2.1	3.0	3.1
Ever had cancer*	3.5	11.3	5.7
Heart disease*	2.4	7.4	4.4
Diabetes*	4.6	9.5	9.3
Hypertension*	10.8	24.6	18.7

[a] Missing data was less than 2.0% across all variables. * Pearson's χ^2 test, $p < .05$.

Table 8

Bivariate Analysis of Mental Health Outcomes by Ethnicity

	Valid Percentage Distributions		
	Latin American n = 1,799	White n = 168,225	Other n = 33,730
Self-Rated Mental Health*			
Excellent	27.8	24.0	24.4
Very good	26.6	27.9	25.3
Good	39.5	40.4	42.1
Fair	4.7	6.5	6.8
Poor	1.3	1.1	1.4
Anxiety disorders*	6.9	9.4	8.5
Mood disorders*	6.9	10.1	8.6

[a] Missing data was less than 2.0% across all variables. * Pearson's χ^2 test, $p < .05$.

Health Care Utilization

As shown in Table 9, a comparison of ethnicity with health care utilization outcomes also revealed statistically significant findings in support of the HHP. Latin American ethnicity was observed to be significantly associated with lower expressions of having had a regular source or provider of health care (substantial evidence suggesting their much lower need for such care) and having consulted a mental health professional, both during the past year (Table 9). Consistent with the pattern of findings demonstrated throughout this section, the evidence strongly suggests that Latin Americans were significantly less likely than were NLAW people to have sought the help of a health care or mental health care professionals during the past year. And again, members of other ethnic groups were intermediary between Latin Americans and NLAW people.

Table 9
Bivariate Analysis of Health Care Utilization Outcomes by Ethnicity

	Valid Percentage Distributions		
	Latin American n = 1,799	White n = 168,225	Other n = 33,730
Had a regular health care provider in past year*	75.4	86.7	78.3
Consulted mental health professional in past year*	7.6	9.7	8.1

[a] Missing data was less than 2.0% across both variables.
* Pearson's χ^2 test, $p < .05$.

Multivariate Analysis

Predictors of Diabetes

In this section of the analysis, multivariate logistic regression models were employed to find out whether the hypothesized and other predictors statistically and practically influenced health, mental health, and health care outcomes. As previously presented, two hypotheses were tested: 1) The HHP will appear in Latin Americans in Canada as demonstrated by their equal to or better than expected health and mental health outcomes and by their consequent lower health care use compared to non-Latin American whites and other racialized groups, and 2) Latin American ethnicity will interact with sex, age, income, education, and immigration to potentiate the protections afforded men, older individuals, those with low incomes, those with low education, and those who have most recently emigrated to Canada.

Results of the first and second hypothesis tests for the first of the ten outcomes—diabetes—are displayed in Table 10. As for the first hypothesis, it can be seen across the top of the table that Latin Americans, as hypothesized, were indeed less likely than NLAW to have diabetes. The unadjusted association in Model 1 suggested that Latin Americans were about half as likely (OR= 0.46) to have diabetes as NLAW, keeping in mind that the Latin Americans, typically had much lower incomes that did the NLAW people. This association was even stronger in the fully adjusted Model 4 (OR= 0.21). In other words, it estimated that Latin Americans were about 79% less likely than NLAW to have diabetes.

There were also a number of other interesting findings related to the first hypothesis, essentially that the HHP would be observed among this study's sample of Latin Americans in Canada. First, all of the other established, intersecting predictors (age, gender, education, income, and immigration status) except language were associated with diabetes in predictable

Table 10
Predictors of Diabetes: Logistic Regression Models (n= 177,071)

Predictors of Diabetes Categories	Model 1 OR	95% CI	Model 2 OR	95%	Model 3 OR	95% CI	Model 4 OR	95% CI
Ethnicity (White)	1.00	…	1.00	…	1.00	…	1.00	…
Other	0.98	0.94, 1.02	1.54	1.46, 1.61	1.45	1.37, 1.53	0.83	0.65, 1.07
Latin American	0.46	0.37, 0.58	0.94	0.74, 1.18	0.83	0.64, 1.07	0.21	0.12, 0.36
Age (Emerging Adult 18 to 24)			1.00	…	1.00	…		
Adults, 25 to 44			3.52	2.88, 4.31	2.63	2.11, 3.29	2.49	1.99, 3.12
Older Adults, 45 to 64			16.06	13.21, 19.52	11.17	8.99, 13.88	10.27	8.23, 12.82
Seniors, 65 or older			29.21	24.03, 35.51	20.09	16.14, 25.00	18.34	14.64, 22.97
Gender (Female)			1.00	…	1.00	…	1.00	…
Male			1.45	1.41, 1.50	1.60	1.54, 1.66	1.64	1.57, 1.70
Education (Primary or less)			1.00	…	1.00	…	1.00	…
Some high school			1.01	0.95, 1.07	1.07	0.99, 1.15	1.07	0.99, 1.15
High school graduate			0.81	0.76, 0.86	0.95	0.89, 1.02	0.95	0.88, 1.02
Some postsecondary			0.78	0.74, 0.83	0.93	0.87, 1.00	0.93	0.87, 0.99
Undergraduate degree			0.59	0.55, 0.63	0.84	0.77, 0.91	0.83	0.767, 0.91
Advanced degree			0.52	0.48, 0.57	0.76	0.68, 0.84	0.75	0.68, 0.83
Income (Less than $30,000)			1.00	…	1.00	…	1.00	…
$30,000 to $59,000			0.78	0.75, 0.82	0.81	0.77, 0.85	0.80	0.76, 0.84
$60,000 to $99,999			0.73	0.69, 0.76	0.77	0.73, 0.82	0.75	0.71, 0.80
$100,000 to $149,999			0.63	0.60, 0.67	0.69	0.64, 0.73	0.66	0.61, 0.71
$150,000 or more			0.53	0.49, 0.56	0.59	0.55, 0.64	0.56	0.52, 0.61

Immigration (Canadian born)	1.00	…	1.00	…	1.00	…
10 years or more	1.00	0.95, 1.05	1.09	1.03, 1.15	0.99	0.93, 1.06
5 to 10 years	0.76	0.63, 0.91	0.72	0.59, 0.88	0.49	0.38, 0.62
Less than 5 years	0.76	0.62, 0.92	0.73	0.58, 0.90	0.37	0.27, 0.52
Official Language (Yes)	1.00	…	1.00	…	1.00	…
No	1.11	0.94, 1.33	1.15	0.92, 1.43	1.06	0.84, 1.33
Marital Status (Single never married)			1.00	…	1.00	…
Separated or divorced			1.05	0.98, 1.12	1.05	0.98, 1.12
Widowed			1.15	1.07, 1.23	1.15	1.07, 1.24
Married or common-law			1.07	1.01, 1.14	1.07	1.02, 1.14
Sense of community belonging (Very weak)			1.00	…	1.00	…
Somewhat weak			0.96	0.89, 1.03	0.96	0.89, 1.03
Somewhat strong			0.91	0.85, 0.97	0.90	0.85, 0.97
Very strong			0.90	0.83, 0.96	0.89	0.83, 0.96
BMI (Healthy weight)			1.00	…	1.00	…
Overweight			1.96	1.87, 2.06	1.97	1.88, 2.07
Obese			4.39	4.19, 4.60	4.43	4.23, 4.65
Physically active days per week (None)			1.00	…	1.00	…
1 to 3 days			0.81	0.77, 0.85	0.81	0.77, 0.85
4 to 6 days			0.67	0.64, 0.71	0.67	0.64, 0.71
7 days			0.73	0.70, 0.77	0.74	0.70, 0.78
Smoking (Not at all)			1.00	…	1.00	…
Occasionally			0.96	0.87, 1.06	0.97	0.88, 1.08
Daily			0.98	0.93, 1.028	0.98	0.93, 1.04

Alcohol consumption (None)	1.00	…	1.00	…
Occasionally	0.90	0.86, 0.95	0.91	0.86, 0.95
Regularly	0.51	0.49, 0.53	0.52	0.49, 0.54
CCHS Cycle (2015)	1.00	…	1.00	…
2016	1.05	0.99, 1.10	1.05	0.99, 1.10
2017	1.08	1.02, 1.13	1.07	1.02, 1.13
2018	1.07	1.02, 1.12	1.07	1.02, 1.12
Ethnicity by Age				$p = .012$
Ethnicity by Gender				$p = .002$
Ethnicity by Income				$p < .001$
Ethnicity by Immigration				$p < .001$

Notes: CI, confidence interval; OR, odds ratio. An odds ratio of 1.00 is the baseline. Participants with valid data on all variables were included (87%). Missing data were completely at random: Little's MCAR Test $\chi^2(1) = 0.03$, $p = 0.87$. Ethnicity by education was significant when entered alone, but not when entered with the other interactions. Model 3 Nagelkerke $R^2 = 20.9\%$. Model 4 Nagelkerke $R^2 = 20.9\%$.

ways, and after their adjustment, the first hypothesis was still supported (OR = 0.94). Though not statistically significant, per se, it still supported the hypothesis that the Latin Americans' risk of diabetes seemed on par, not greater than, that of otherwise similar NLAW peoples' (Model 2). Second, nearly all of the potentially explanatory predictors, that is, proxies of social, familial and community supports as well as lifestyle factors, significantly entered Model 3 in predictable ways. Their entry again clarified the ethnicity-diabetes association and systematically replicated support for the paradoxical hypothesis of a relative Latin American advantage (OR = 0.83, Model 3), suggesting that they could, in aggregate, probably at least partially explain it. Finally, such a paradoxical, seemingly protective effect of ethnicity also seemed unique to the Latin American study group. Members of other ethnic groups, in contrast, demonstrated much greater risks than NLAW of being diagnosed with diabetes in these models (ORs of 1.54 and 1.45).

Four of the five second or moderator hypotheses were supported as four of the hypothesized interactions significantly entered Model 4: ethnicity by age, gender, income, and immigration status. These significant interactions are, respectively, depicted in Tables 11 to 14. A few notes on interpreting these tabular displays may be in order. First, they display ethnicity-diabetes associations, that is, odds ratios, within strata of the other predictors or moderators, comparing Latin Americans with all of the other study participants (83.3% NLAW). Second, a statistically significant interaction means that at least one of the within strata odds ratios differs significantly from at least one other. And third, the smallest odds ratios, that is, those most indicative of hypothesis support (paradoxical protective [Latin American] ethnicity-diabetes associations) are italicized within the tables.

The hypothesis that Latin American ethnicity interacts with age to especially potentiate the protections afforded to older individuals was partially supported. The ethnicity by age interaction is practically depicted in Table 11. The interaction was such that the relative

Table 11
Depiction of Ethnicity by Age Interaction on Diabetes

	OR	95% CI
Age		
Emerging Adult (18 to 24)	…	…
Adults (25 to 44)	0.93	0.55, 1.59
Older Adults (45 to 64)	*0.72*	0.49, 1.05
Seniors (65 or older)	1.05	0.67, 1.64

Note: Emerging adults were not included in this analysis because of insufficient statistical power.

Table 12
Depiction of Ethnicity by Gender Interaction on Diabetes

	OR	95% CI
Gender		
Female	0.90	0.62, 1.31
Male	*0.77*	0.54, 1.09

Table 13
Depiction of Ethnicity by Income Interaction on Diabetes

	OR	95% CI
Income		
Less than $30,000	*0.76*	0.47, 1.24
$30,000 to $59,999	*0.62*	0.36, 1.07
$60,000 to $99,999	*0.85*	0.51, 1.39
$100,000 to $149,999	1.08	0.55, 2.09
$150,000 or more	1.33	0.76, 2.27

Table 14
Depiction of Ethnicity by Immigration Status Interaction on Diabetes

	OR	95% CI
Immigration Status		
Canadian-born	*0.59*	0.30, 1.18
10 years or more	1.14	0.85, 1.53
5 to 10 years	*0.93*	0.29, 2.96
Less than 5 years	*0.90*	0.24, 3.36

advantage of being Latin American was greatest among older adults aged 45 to 64 years of age. That is, the ethnicity-diabetes association was observed to be most protective (and most paradoxical) among them (OR= 0.72). In other words, Latin Americans between the ages of 45 to 64 compared to all of the other, similarly aged, study participants, who were largely NLAW, seemed to be the most protected. As anticipated, a similarly potentiated protective effect of being Latin American was not observed among seniors.

The second hypothesis that ethnicity would interact with gender to potentiate the protections afforded Latin American men in particular was supported (Table 12). They seemed to enjoy greater protection (OR= 0.77), but again, Latin American women were still relatively advantaged (OR= 0.90), being at lesser risk or at least at similar risk to NLAW women or women of other ethnic backgrounds. The second hypothesis that ethnicity would interact with income to potentiate the protections afforded those with the lowest incomes was also incredibly and importantly supported (Table 13). It observed that the HHP was strongest or most protective among the three lowest income groups, odds ratios ranging from 0.62 to 0.85. Finally, the significant ethnicity by immigration status interaction is depicted in Table 14. The hypothesis of potentiated protections among the most recently emigrated to Canada was partially supported. As

hypothesized, Latin American protections seemed relatively strong among the most recent immigrants in Canada, those newcomers who arrived less than five years ago (OR = 0.90) or between 5 and 10 years ago (OR= 0.93). The seemingly most protective effect observed among Canadian-born Latin Americans (0.59), however, was not anticipated.

Predictors of Self-Reported Health Status

Table 15 displays analyses related to the testing of the first hypothesis on self-reported health status. The hypothesis that Latin Americans will have equal to or better than expected self-reported health status, that is, on par with NLAW, was supported. This was evidenced by no statistically significant differences between Latin Americans and NLAW on self-reported health in the unadjusted Model 1 or in any of the adjusted models. Again, these paradoxical findings seemed Latin American specific, as increased risks of reporting poor or fair health statuses were observed among other racialized ethnic groups (Models 2 and 3, significant ORs of 1.06 to 1.11).

The second hypothesis was supported by three significant interactions: ethnicity by age, education, and immigration status. The ethnicity by age interaction provided some support for the hypothesis that greater protections would be afforded to older people (Table 16). Again, the age group demonstrating one of the most protective effects among Latin Americans was older adults 45 to 64 years of age (OR = 0.98). But again, seniors did not fit the theory and, in fact, counter to the hypothesis, the most protected group seemed to be the youngest Latin Americans, that is, emerging adults less than 25 years of age (OR= 0.89).

The second hypothesis was further supported by the finding of a significant ethnicity by educational attainment interaction (Table 17). Consistent with some previous US research and the, above noted, finding on the ethnicity by income interaction on diabetes, further clear support for particularly large protective effects among Latin Americans were observed among some in the lowest socioeconomic strata, in this instance, indexed by educational attainment. The greatest

Table 15
Predictors of Fair or Poor Self-Reported (SRH) Health Status: Logistic Regression Models (n = 175,496)

Predictors of SRH	Model 1		Model 2		Model 3		Model 4	
Categories	OR	95% CI	OR	95%	OR	95% CI	OR	95% CI
Ethnicity (White)	1.00	…	1.00	…	1.00	…	1.00	…
Other	1.02	0.99, 1.06	1.11	1.07, 1.15	1.06	1.02, 1.10	0.90	0.78, 1.03
Latin-American	0.90	0.79, 1.02	1.05	0.91, 1.21	1.09	0.94, 1.26	0.88	0.65, 1.19
Age (Emerging Adults, 18 to 24)			1.00	…	1.00	…	1.00	…
Adults (25 to 44)			1.27	1.20, 1.35	1.23	1.15, 1.32	1.20	1.12, 1.29
Older Adults (45 to 64)			1.72	1.62, 1.82	1.60	1.50, 1.72	1.53	1.42, 1.64
Seniors (65 or older)			1.71	1.61, 1.81	1.55	1.44, 1.66	1.46	1.35, 1.57
Gender (Female)			1.00	…	1.00	…	1.00	…
Male			1.07	1.04, 1.10	1.08	1.05, 1.11	1.08	1.05, 1.11
Education (Primary or Less)			1.00	…	1.00	…	1.00	…
Some High School			0.87	0.82, 0.92	0.91	0.85, 0.97	0.92	0.86, 0.98
High School Graduate			0.68	0.65, 0.72	0.74	0.70, 0.79	0.75	0.71, 0.80
Some Post-Secondary			0.65	0.62, 0.69	0.74	0.70, 0.78	0.75	0.71, 0.80
Undergrad Degree			0.58	0.54, 0.61	0.71	0.67, 0.76	0.73	0.68, 0.78
Advanced Degree			0.61	0.57, 0.65	0.75	0.69, 0.81	0.77	0.71, 0.84
Income (Less than $30,000)			1.00	…	1.00	…	1.00	…
$30,000 to $59,000			0.63	0.61, 0.65	0.66	0.63, 0.68	0.66	0.63, 0.68
$60,000 to $99,999			0.52	0.50, 0.54	0.57	0.55, 0.60	0.57	0.55, 0.59
$100,000 to $149,999			0.48	0.46, 0.50	0.56	0.53, 0.59	0.56	0.53, 0.59
$150,000 or more			0.49	0.47, 0.52	0.58	0.55, 0.62	0.58	0.55, 0.61

Immigration Years (Canadian Born)	1.00	…	1.00	…	1.00	…
10 or more years	1.02	0.98, 1.06	0.98	0.94, 1.02	1.00	0.95, 1.05
5 to 10 years	0.83	0.75, 0.92	0.81	0.73, 0.91	0.94	0.82, 1.08
Less than 5 years	0.75	0.67, 0.83	0.72	0.64, 0.81	0.91	0.77, 1.08
Official Language (Yes)	1.00	…	1.00	…	1.00	…
No	1.45	1.26, 1.67	1.28	1.07, 1.54	0.83	0.69, 0.99
Marital Status (Never Married)			1.00	…	1.00	…
Separated or divorced			1.12	1.07, 1.17	1.12	1.07, 1.17
Widowed			0.94	0.89, 0.99	0.94	0.89, 1.00
Married or common-law			0.96	0.93, 1.00	0.96	0.93, 1.00
Sense of Community Belonging (Very Weak)			1.00	…	1.00	…
Somewhat weak			0.64	0.61, 0.68	0.64	0.61, 0.68
Somewhat strong			0.52	0.50, 0.55	0.53	0.50, 0.55
Very strong			0.54	0.51, 0.57	0.54	0.51, 0.57
BMI (Healthy weight)			1.00	…	1.00	…
Overweight			0.91	0.88, 0.94	0.91	0.88, 0.94
Obese			1.15	1.11, 1.19	1.15	1.11, 1.19
Physically active days per week (None)			1.00	…	1.00	…
1 to 3 days			0.76	0.74, 0.79	0.76	0.73, 0.79
4 to 6 days			0.71	0.68, 0.74	0.70	0.68, 0.73
7 days			0.80	0.77, 0.83	0.79	0.76, 0.83
Smoking (Not at all)			1.00	…	1.00	…
Occasionally			1.14	1.07, 1.22	1.14	1.07, 1.22
Daily			1.30	1.26, 1.35	1.32	1.25, 1.35

Alcohol consumption (None)	1.00	…	1.00	…
Occasionally	0.83	0.80, 0.87	0.83	0.80, 0.86
Regularly	0.66	0.64, 0.69	0.66	0.64, 0.68
CCHS Cycle (2015)	1.00	…	1.00	…
2016	1.03	0.99, 1.07	1.03	0.99, 1.08
2017	1.05	1.01, 1.10	1.05	1.01, 1.10
2018	1.97	1.90, 2.05	1.98	1.90, 2.05
Ethnicity by Age			$p < .001$	
Ethnicity by Education			$p = .017$	
Ethnicity by Immigration			$p = .006$	

Notes: CI, confidence interval; OR, odds ratio. An odds ratio of 1.00 is the baseline.

such paradoxical, protective effects on self-reported health was among those who either had completed some high school (OR = 0.41) or whose highest educational achievement was a high school diploma (OR = 0.51). The few study participants with only primary school educations were the exception to this seemingly developing rule (OR = 1.97). Finally, more hypothetical support was provided through depiction of the ethnicity by immigration status interaction on self-reported health. Here, as hypothesized, the greatest protection was found among certain relative newcomers, who landed in Canada only five to ten years ago.

Table 16
Depiction of Ethnicity by Age Interaction on Self-Reported Health Status

	OR	95% CI
Age		
Emerging Adults (18 to 24)	*0.89*	0.53, 1.51
Adults (25 to 44)	1.13	0.90, 1.42
Older Adults (45 to 64)	*0.98*	0.75, 1.23
Seniors (65 or older)	1.56	1.05, 2.31

Table 17
Depiction of Ethnicity by Education Interaction on Self-Reported Health Status

	OR	95% CI
Education		
Primary or Less	1.97	1.07, 3.64
Some High School	*0.41*	0.16, 1.03
High School Graduate	*0.51*	0.30, 0.86
Some Post Secondary	1.08	0.68, 1.72
Undergraduate Degree	*0.70*	0.35, 1.37
Advanced Degree	*0.66*	0.22, 1.91

Table 18
Depiction of Ethnicity by Immigration Interaction on Self-Reported Health Status

	OR	95% CI
Immigration		
Canadian-born	1.11	1.05, 1.16
10 or more years	1.20	0.98, 1.48
5 to 10 years	*0.61*	0.36, 1.05
Less than 5 years	1.17	0.64, 2.10

Predictors of Heart Disease

The main hypothesis of equal or better odds of Latin Americans not having heart disease (compared to NLAW) was supported (Table 19, Model 1): OR = 0.31, 95% 0.23, 0.43). In other words, Latin Americans were approximately two thirds less likely to report heart disease. The adjusted models, two through four, also supported the hypothesis as evidenced by no statistical differences between Latin Americans and NLAW. Furthermore, all of the established intersectional predictors as well as all of the social, familial, community and lifestyle factors, again except for smoking, significantly predicted heart disease (Models 2 and 3). Observing the ethnicity-heart disease protective association in these models (ORs of 0.80 and 0.75), it seems fair to estimate that these factors, in aggregate, may explain about half of the observed Latin American paradoxical effect. Here again the moderator hypothesis that ethnicity interacts with immigration status to especially potentiate the protections afforded the most recent immigrants was partially supported (Table 20). As hypothesized, the greatest Latin American protection was found among certain relative newcomers, who landed in Canada only five to ten years ago (OR = 0.22), and a recode—combining the *5 to 10 years* and less than *5 year* groups—also found substantial such protection among those who landed in Canada less than 10 years ago.

Table 19
Predictors of Heart Disease: Logistic Regression Models (n = 176,680)

Predictors of Heart Disease Categories	Model 1 OR	Model 1 95% CI	Model 2 OR	Model 2 95%	Model 3 OR	Model 3 95% CI	Model 4 OR	Model 4 95% CI
Ethnicity (White)	1.00	…	1.00	…	1.00	…	1.00	…
Other	0.58	0.55, 0.62	0.95	0.89, 1.02	0.90	0.84, 0.97	0.97	0.89, 1.05
Latin American	0.31	0.23, 0.43	0.80	0.60, 1.10	0.75	0.53, 1.05	1.02	0.70, 1.50
Age (Emerging Adult 18to 24)			1.00	…	1.00	…	1.00	…
Adults, 25 to 44			1.33	1.07, 1.65	1.25	0.97, 1.60	1.26	0.98, 1.62
Older Adults, 45 to 64			8.00	6.52, 9.78	7.00	5.53, 8.85	7.07	5.59, 8.94
Seniors, 65 or older			24.14	19.74, 29.53	18.96	14.97, 24.02	19.11	15.09, 24.21
Gender (Female)			1.00	…	1.00	…	1.00	…
Male			1.60	1.54, 1.66	1.68	1.61, 1.76	1.69	1.62, 1.76
Education (Primary or less)			1.00	…	1.00	…	1.00	…
Some high school			0.92	0.86, 0.99	0.97	0.90, 1.05	0.97	0.90, 1.05
High school graduate			0.75	0.70, 0.80	0.85	0.79, 0.92	0.85	0.79, 0.92
Some postsecondary			0.77	0.72, 0.82	0.89	0.83, 0.96	0.90	0.83, 0.96
Undergraduate degree			0.61	0.56, 0.66	0.78	0.71, 0.86	0.79	0.72, 0.87
Advanced degree			0.70	0.63, 0.77	0.94	0.84, 1.04	0.94	0.85, 1.05
Income (Less than $30,000)			1.00	…	1.00	…	1.00	…
$30,000 to $59,000			0.77	0.73, 0.80	0.79	0.75, 0.84	0.79	0.75, 0.84
$60,000 to $99,999			0.68	0.64, 0.71	0.71	0.66, 0.75	0.71	0.67, 0.76
$100,000 to $149,999			0.58	0.55, 0.63	0.63	0.58, 0.68	0.63	0.58, 0.68
$150,000 or more			0.53	0.49, 0.57	0.55	0.51, 0.61	0.55	0.51, 0.61

Immigration (Canadian born)	1.00	…	1.00	…	1.00	…
10 years or more	0.85	0.81, 0.91	0.86	0.81, 0.92	0.89	0.84, 0.96
5 to 10 years	0.70	0.54, 0.92	0.65	0.48, 0.87	0.81	0.59, 1.12
Less than 5 years	0.55	0.39, 0.76	0.51	0.35, 0.73	0.74	0.49, 1.14
Official Language (Yes)	1.00	…	1.00	…	1.00	…
No	1.34	1.08, 1.66	1.24	0.94, 1.64	1.31	0.99, 1.73
Marital Status (Single never married)			1.00	…	1.00	…
Separated or divorced			1.19	1.10, 1.28	1.19	1.10, 1.28
Widowed			1.51	1.39, 1.63	1.51	1.39, 1.63
Married or common-law			1.21	1.13, 1.30	1.21	1.13, 1.30
Sense of community belonging (Very weak)			1.00	…	1.00	…
Somewhat weak			0.87	0.81, 0.95	0.88	0.81, 0.95
Somewhat strong			0.77	0.71, 0.83	0.77	0.71, 0.83
Very strong			0.77	0.71, 0.83	0.77	0.71, 0.84
BMI (Healthy weight)			1.00	…	1.00	…
Overweight			1.16	1.11, 1.21	1.16	1.10, 1.21
Obese			1.56	1.48, 1.64	1.55	1.48, 1.64
Physically active days per week (None)			1.00	…	1.00	…
1 to 3 days			0.83	0.79, 0.88	0.83	0.79, 0.88
4 to 6 days			0.72	0.67, 0.77	0.72	0.68, 0.77
7 days			0.84	0.79, 0.88	0.84	0.79, 0.88
Smoking (Not at all)			1.00	…	1.00	…
Occasionally			1.04	0.92, 1.16	1.03	0.92, 1.16
Daily			1.04	0.98, 1.10	1.03	0.97, 1.10

Alcohol consumption (None)	1.00	…	1.00	…
Occasionally	0.86	0.81, 0.91	0.85	0.81, 0.91
Regularly	0.70	0.67, 0.73	0.70	0.66, 0.73
CCHS Cycle (2015)	1.00	…	1.00	…
2016	1.07	1.01, 1.14	1.07	1.01, 1.14
2017	1.08	1.02, 1.14	1.08	1.02, 1.14
2018	0.99	0.93, 1.05	0.99	0.94, 1.05
Ethnicity by Immigration			p = .001	

Notes: CI, confidence interval; OR, odds ratio. An odds ratio of 1.00 is the baseline.

Table 20
Depiction of Ethnicity by Immigration Interaction on Heart Disease

	OR	95% CI
Immigration		
Canadian-born	0.88	0.43, 1.83
10 or more years	0.68	0.45, 1.03
5 to 10 years	*0.22*	0.03, 1.86
Less than 5 years	2.81	0.59, 13.44
Less than 10 years[a]	*0.87*	0.28, 2.72

[a] Combined *5 to 10 years* and less than *five years* to further explore the interaction.

Contrary to this pattern and the hypothesis, however, the finding among the most recent immigrants, those who resided in Canada for less than five years, was distinctly counter to the hypothesis. Among them, Latin Americans were at a nearly three-fold greater risk of heart disease than were, otherwise similar, NLAW people (OR= 2.81).

Predictors of Cancer Diagnosis

The main hypothesis related to a cancer diagnosis was strongly supported with ethnicity-cancer odds indicating large Latin American advantages (ORs ranged from 0.29 to 0.69; Table 21, Models 1 to 3). On this outcome, however, the ethnic advantage was not restricted to Latin Americans as those of other ethnicities seemed similarly advantaged. Also, comparisons of Models 1 to 3 again suggested that such advantages are likely accounted for, at least in part (nearly 50%), by the hypothesized explanatory factors. Model 4 detected four significant interactions: ethnicity by gender, education, income, and immigration. They are depicted in Tables 22 to 25. The interactions found particular Latin American advantages among men (OR = 0.68), those with only some high school education (OR = 0.30), those with essentially lower middle-class incomes of $30,000 to $59,999 (OR = 0.68), and especially among

Table 21
Predictors of Cancer Diagnosis: Logistic Regression Models (n = 177,087)

Predictors of Cancer Diagnosis Categories	Model 1 OR	Model 1 95% CI	Model 2 OR	Model 2 95%	Model 3 OR	Model 3 95% CI	Model 4 OR	Model 4 95% CI
Ethnicity (White)	1.00	…	1.00	…	1.00	…	1.00	…
Other	0.48	0.46, 0.50	0.78	0.73, 0.82	0.77	0.72, 0.82	0.98	0.85, 1.13
Latin American	0.29	0.22, 0.37	0.69	0.53, 0.90	0.69	0.52, 0.92	1.51	1.00, 2.27
Age (Emerging Adult 18to 24)			1.00	…	1.00	…	1.00	…
Adults, 25 to 44			3.91	3.10, 4.92	3.68	2.88, 4.69	3.74	2.93, 4.77
Older Adults, 45 to 64			16.99	13.57, 21.26	15.17	11.94, 19.29	15.51	12.20, 19.71
Seniors, 65 or older			44.98	35.95, 56.28	37.68	29.61, 47.95	38.33	30.12, 48.78
Gender (Female)			1.00	…	1.00	…	1.00	…
Male			0.82	0.79, 0.84	0.81	0.78, 0.83	0.83	0.80, 0.86
Education (Primary or less)			1.00	…	1.00	…	1.00	…
Some high school			1.07	1.00, 1.14	1.08	1.00, 1.16	1.09	1.01, 1.17
High school graduate			1.04	0.98, 1.11	1.08	1.01, 1.16	1.10	1.02, 1.18
Some postsecondary			1.05	0.99, 1.11	1.10	1.03, 1.18	1.12	1.05, 1.20
Undergraduate degree			1.00	0.94, 1.08	1.08	1.00, 1.17	1.12	1.03, 1.21
Graduate degree			1.17	1.08, 1.27	1.28	1.17, 1.40	1.33	1.22, 1.46
Income (Less than $30,000)			1.00	…	1.00	…	1.00	…
$30,000 to $59,000			0.95	0.91, 1.00	0.96	0.91, 1.00	0.97	0.92, 1.01
$60,000 to $99,999			0.93	0.89, 0.97	0.93	0.88, 0.98	0.94	0.89, 1.00
$100,000 to $149,999			0.85	0.80, 0.90	0.84	0.79, 0.90	0.86	0.80, 0.92
$150,000 or more			0.83	0.78, 0.88	0.83	0.77, 0.89	0.85	0.79, 0.91

Immigration (Canadian born)	1.00	…	1.00	…	1.00	…
10 years or more	0.83	0.79, 0.87	0.83	0.79, 0.88	0.91	0.86, 0.96
5 to 10 years	0.37	0.28, 0.48	0.33	0.24, 0.45	0.52	0.37, 0.71
Less than 5 years	0.32	0.23, 0.45	0.31	0.22, 0.44	0.62	0.42, 0.90
Official Language (Yes)	1.00	…	1.00	…	1.00	…
No	0.81	0.64, 1.03	0.66	0.48, 0.91	0.67	0.48, 0.93
Marital Status (Single never married)			1.00	…	1.00	…
Separated or divorced			1.12	1.05, 1.19	1.12	1.05, 1.20
Widowed			1.24	1.16, 1.32	1.24	1.16, 1.33
Married or common-law			1.16	1.09, 1.22	1.16	1.10, 1.23
Sense of community belonging (Very weak)			1.00	…	1.00	…
Somewhat weak			0.85	0.80, 0.91	0.86	0.80, 0.92
Somewhat strong			0.86	0.80, 0.91	0.86	0.81, 0.92
Very strong			0.87	0.81, 0.93	0.88	0.82, 0.94
BMI (Healthy weight)			1.00	…	1.00	…
Overweight			0.98	0.94, 1.02	0.97	0.94, 1.01
Obese			1.03	0.98, 1.07	1.02	97.4, 1.06
Physically active days per week (None)			1.00	…	1.00	…
1 to 3 days			0.90	0.86, 0.94	0.90	0.86, 0.94
4 to 6 days			0.85	0.81, 0.90	0.85	0.81, 0.89
7 days			0.96	0.92, 1.01	0.95	0.91, 1.00
Smoking (Not at all)			1.00	…	1.00	…
Occasionally			0.98	0.89, 1.08	0.97	0.88, 1.07
Daily			1.00	0.95, 1.05	1.00	0.94, 1.04

Alcohol consumption (None)	1.00	…	1.00	…
Occasionally	1.00	0.95, 1.05	1.00	0.95, 1.05
Regularly	0.95	0.92, 1.00	0.94	0.90, 0.98
CCHS Cycle (2015)	1.00	…	1.00	…
2016	0.99	0.95, 1.04	0.99	0.95, 1.04
2017	1.02	0.98, 1.07	1.02	0.97, 1.07
2018	1.01	0.97, 1.06	1.02	0.97, 1.06
Ethnicity by Gender			$p < .001$	
Ethnicity by Education			$p = .012$	
Ethnicity by Income			$p = .003$	
Ethnicity by Immigration			$p < .001$	

Notes: CI, confidence interval; OR, odds ratio. An odds ratio of 1.00 is the baseline.

newcomers (OR = 0.50); all supported the hypothesis. Also, certain other findings related to socioeconomic factors, that is, education and income, were counter to the hypothesis. Those with the highest education, for example, seemed most protected (OR= 0.20) and those with moderately higher incomes were also well protected (OR= 0.58).

Table 22
Depiction of Ethnicity by Gender Interaction on Cancer

	OR	95% CI
Gender		
Female	0.71	0.77, 0.90
Male	*0.68*	0.43, 1.08

Table 23
Depiction of Ethnicity by Education Interaction on Cancer

	OR	95% CI
Education		
Primary or less	0.93	0.35, 2.45
Some high school	*0.30*	0.70, 1.26
High school graduate	0.68	0.35, 1.30
Some post secondary	0.74	0.46, 1.18
Undergraduate degree	0.92	0.54, 1.57
Advanced degree	*0.20*	0.48, 0.81

Table 24
Depiction of Ethnicity by Income Interaction on Cancer

	OR	95% CI
Income		
Less than $30,000	0.88	0.53, 1.47
$30,000 to $59,999	*0.68*	0.39, 1.18
$60,000 to $99,999	*0.47*	0.24, 0.93
$100,000 to $149,999	*0.58*	0.25, 1.33
$150,000 or more	0.75	0.42, 1.86

Table 25
Depiction of Ethnicity by Immigration Interaction on Cancer

	OR	95% CI
Immigration		
Canadian-born	0.77	0.43, 1.40
10 or more years	*0.58*	0.41, 0.82
5 to 10 years	*0.64*	0.20, 2.03
Less than 5 years	*0.50*	0.06, 4.13

Predictors of Hypertension

The main hypothesis related to Latin American advantages on hypertension was strongly supported across all models (ORs ranged from 0.37 to 0.78; Table 26), and here the advantage did seem specific to Latin Americans. Models 1 to 3 again suggested that such advantages were likely accounted for, at least in part (again approximately 50%), by the hypothesized explanatory factors such as community supports and healthy lifestyles. Model 4 detected four significant interactions: ethnicity by gender, education, income, and immigration. They are depicted in

Tables 27 to 30. Two of the interactions were supportive of this study's theoretical foundation and so supported the hypothesis: ethnicity by education, and ethnicity by income (Tables 28 and 29). They both depict interactions suggesting that Latin American paradoxical protective effects are probably largest among those who may stand to benefit most, that is, among the most socioeconomically vulnerable. For example, the deepest, most paradoxical effects were observed among those with the lowest annual household incomes
(< $30,000 per year, OR = 0.56) and among those with relatively low educational attainments (some high school to high school graduates, respective ORs of 0.50 to 0.63). The interactions involving gender and immigration status were counter to the hypotheses (Tables 27 and 30).

Table 26
Predictors of Hypertension: Logistic Regression Models (n = 176,687)

Predictors of Hypertension Categories	Model 1 OR	Model 1 95% CI	Model 2 OR	Model 2 95%	Model 3 OR	Model 3 95% CI	Model 4 OR	Model 4 95% CI
Ethnicity (White)	1.00	…	1.00	…	1.00	…	1.00	…
Other	0.71	0.69, 0.73	1.17	1.13, 1.22	1.18	1.14, 1.24	1.03	0.93, 1.14
Latin American	0.37	0.32, 0.43	0.78	0.66, 0.92	0.73	0.61, 0.87	0.48	0.37, 0.63
Age (Emerging Adult 18to 24)			1.00	…	1.00	…	1.00	…
Adults, 25 to 44			3.36	2.95, 3.83	2.59	2.25, 2.99	2.57	2.23, 2.96
Older Adults, 45 to 64			18.67	16.45, 21.20	13.56	11.81, 15.57	13.45	11.71, 15.45
Seniors, 65 or older			44.31	39.02, 50.31	32.95	28.64, 37.90	32.76	28.48, 37.68
Gender (Female)			1.00	…	1.00	…	1.00	…
Male			1.10	1.08, 1.13	1.10	1.07, 1.13	1.08	1.05, 1.12
Education (Primary or less)			1.00	…	1.00	….	1.00	…
Some high school			1.04	0.99, 1.09	1.09	1.03, 1.16	1.08	1.02, 1.15
High school graduate			0.88	0.84, 0.93	0.98	0.93, 1.04	0.97	0.92, 1.02
Some postsecondary			0.81	0.77, 0.85	0.90	0.86, 0.95	0.89	0.84, 0.94
Undergraduate degree			0.63	0.60, 0.66	0.79	0.74, 0.84	0.76	0.72, 0.81
Advanced degree			0.57	0.54, 0.61	0.74	0.69, 0.79	0.71	0.66, 0.77
Income (Less than $30,000)			1.00	…	1.00	….	1.00	…
$30,000 to $59,000			0.86	0.84, 0.89	0.86	0.83, 0.90	0.86	0.83, 0.89
$60,000 to $99,999			0.84	0.81, 0.87	0.84	0.80, 0.87	0.83	0.79, 0.86
$100,000 to $149,999			0.80	0.77, 0.83	0.79	0.75, 0.83	0.78	0.74, 0.82
$150,000 or more			0.71	0.67, 0.74	0.71	0.67, 0.75	0.70	0.66, 0.74

Immigration (Canadian born)	1.00	…	1.00	…	1.00	…
10 years or more	1.02	0.99, 1.06	1.10	1.06, 1.14	1.06	1.01, 1.10
5 to 10 years	0.74	0.64, 0.84	0.76	0.66, 0.87	0.63	0.53, 0.75
Less than 5 years	0.78	0.68, 0.90	0.90	0.77, 1.05	0.67	0.54, 0.83
Official Language (No)	1.00	…	1.00	…	1.00	…
Yes	1.04	0.90, 1.19	1.08	0.90, 1.29	1.11	0.92, 1.33
Marital Status (Single never married)			1.00	…	1.00	…
Separated or divorced			1.05	1.00, 1.10	1.05	1.00, 1.10
Widowed			1.43	1.36, 1.50	1.42	1.35, 1.50
Married or common-law			1.11	1.07, 1.16	1.11	1.06, 1.16
Sense of community belonging (Very weak)			1.00	…	1.00	…
Somewhat weak			0.97	0.92, 1.02	0.96	0.91, 1.02
Somewhat strong			0.94	0.90, 0.99	0.94	0.89, 0.99
Very strong			0.89	0.84, 0.94	0.88	0.84, 0.93
BMI (Healthy weight)			1.00	…	1.00	…
Overweight			1.81	1.76, 1.87	1.82	1.76, 1.87
Obese			3.54	3.42, 3.66	3.56	4.44, 3.68
Physically active days per week (None)			1.00	…	1.00	…
1 to 3 days			0.93	0.90, 0.96	0.93	0.90, 0.96
4 to 6 days			0.83	0.80, 0.86	0.83	0.80, 0.86
7 days			0.85	0.82, 0.88	0.86	0.83, 0.89
Smoking (Not at all)			1.00	…	1.00	…
Occasionally			0.98	0.92, 1.50	0.99	0.92, 1.06
Daily			1.03	0.99, 1.07	1.03	0.99, 1.07

Alcohol consumption (None)	1.00	…	1.00	…
Occasionally	0.97	0.94, 1.01	0.97	0.93, 1.01
Regularly	0.92	0.89, 0.95	0.92	0.89, 0.95
CCHS Cycle (2015)	1.00	…	1.00	…
2016	1.00	0.96, 1.03	1.00	0.96, 1.03
2017	0.97	0.94, 1.01	0.97	0.94, 1.00
2018	0.98	0.94, 1.02	0.98	0.94, 1.01
Ethnicity by Gender				$p = .002$
Ethnicity by Education				$p = .015$
Ethnicity by Income				$p = .051$
Ethnicity by Immigration				$p < .001$

Notes: CI, confidence interval; OR, odds ratio. An odds ratio of 1.00 is the baseline.

Table 27
Depiction of Ethnicity by Gender Interaction on Hypertension

	OR	95% CI
Gender		
Female	*0.69*	0.53, 0.91
Male	0.75	0.59, 0.95

Table 28
Depiction of Ethnicity by Education Interaction on Hypertension

	OR	95% CI
Education		
Primary or less	1.35	0.70, 2.56
Some high school	*0.50*	0.25, 1.00
High school graduate	*0.63*	0.43, 0.94
Some post secondary	0.76	0.56, 1.04
Undergraduate degree	*0.68*	0.45, 1.03
Advanced degree	0.93	0.53, 1.66

Table 29
Depiction of Ethnicity by Income Interaction on Hypertension

	OR	95% CI
Income		
Less than $30,000	*0.56*	0.53, 1.47
$30,000 to $59,999	0.78	0.39, 1.18
$60,000 to $99,999	0.78	0.24, 0.93
$100,000 to $149,999	0.87	0.25, 1.33
$150,000 or more	0.71	0.42, 1.86

Table 30
Depiction of Ethnicity by Immigration Interaction on Hypertension

	OR	95% CI
Immigration		
Canadian-born	*0.80*	053, 1.22
10 or more years	*0.77*	0.62, 0.96
5 to 10 years	0.91	0.46, 1.82
Less than 5 years	1.10	0.50, 2.38

Predictors of Self-Reported Mental Health

Table 31 displays regression findings related to ethnicity-self-rated mental health hypothesis tests. The first hypothesis, that Latin Americans will have lesser odds of self-rating their mental health as *fair* or *poor* was supported in the unadjusted Model 1. It estimated that Latin Americans were 22% less likely than otherwise similar NLAW people to so rate their mental health (OR= 0.78). Model 4, that included five interactions, revealed even greater protections afforded Latin Americans. It estimated that they were 58% less likely than, otherwise similar NLAW people, to self-rate their mental health as fair or poor (OR= 0.42). Also, Models 2 and 3 suggest a Latin-American specific effect, and that perhaps most of the observed paradoxical effect could be explained by factors in the models.

All five interactions were found to be statistically significant in the fully adjusted model. They are depicted in Table 32 to 36. Two were clearly hypothetically supportive, while the three others providing some support along with some mixed, or counter to the hypothesis' findings. As for unequivocal support, the ethnicity by gender and immigration interactions found the most paradoxical protective effects among Latin American men (OR= 0.74) and relative newcomers to Canada (< 5 years since landing and 5 to 10 years; respective ORs of 0.65 and 0.15). Additional

Table 31
Predictors of Fair or Poor Self-Reported Mental Health (SRMH): Logistic Regression Models (n = 177,022)

Predictors of SRMH	Model 1		Model 2		Model 3		Model 4	
Categories	OR	95% CI	OR	95%	OR	95% CI	OR	95% CI
Ethnicity (White)	1.00	…	1.00	…	1.00	…	1.00	…
Other	1.09	1.04, 1.14	1.11	1.06, 1.17	1.06	1.01, 1.12	0.67	0.55, 0.80
Latin-American	0.78	0.64, 0.95	0.91	0.74, 1.11	0.91	0.73, 1.12	0.42	0.28, 0.65
Age (Emerging Adults, 18 to 24)			1.00	…	1.00	…	1.00	…
Adults (25 to 44)			0.90	0.84, 0.96	0.86	0.80, 0.93	0.82	0.76, 0.88
Older Adults (45 to 64)			0.92	0.86, 0.98	0.88	0.81, 0.94	0.80	0.74, 0.86
Seniors (65 or older)			0.48	0.45, 0.52	0.56	0.51, 0.61	0.50	0.46, 0.55
Gender (Female)			1.00	…	1.00	…	1.00	…
Male			0.85	0.82, 0.88	0.81	0.78, 0.84	0.81	0.78, 0.84
Education (Primary or Less)			1.00	…	1.00	…	1.00	…
Some High School			0.90	0.84, 0.98	0.87	0.80, 0.95	0.89	0.82, 0.97
High School Graduate			0.74	0.69, 0.80	0.75	0.69, 0.81	0.78	0.71, 0.84
Some Post-Secondary			0.69	0.64, 0.74	0.72	0.67, 0.78	0.75	0.72, 0.82
Undergraduate Degree			0.58	0.53, 0.63	0.69	0.63, 0.75	0.73	0.66, 0.81
Advanced Degree			0.58	0.53, 0.65	0.70	0.63, 0.79	0.76	0.68, 0.86
Income (Less than $30,000)			1.00	…	1.00	…	1.00	…
$30,000 to $59,000			0.54	0.51, 0.56	0.63	0.59, 0.66	0.61	0.58, 0.65
$60,000 to $99,999			0.42	0.40, 0.46	0.57	0.54, 0.60	0.55	0.52, 0.58
$100,000 to $149,999			0.37	0.35, 0.39	0.53	0.50, 0.57	0.51	0.47, 0.55
$150,000 or more			0.32	0.30, 0.34	0.50	0.46, 0.54	0.47	0.43, 0.50

Immigration Years (Canadian Born)	1.00	…	1.00	…	1.00	…
10 or more years	0.81	0.77, 0.87	0.85	0.79, 0.91	0.89	0.83, 0.96
5 to 10 years	0.45	0.38, 0.53	0.52,	0.44, 0.63	0.70	0.56, 0.87
Less than 5 years	0.27	0.22, 0.33	0.32	0.26, 0.40	0.51	0.39, 0.68
Official Language (Yes)	1.00	…	1.00	…	1.00	…
No	1.68	1.35, 2.09	1.74	1.36, 2.21	1.56	1.22, 2.00
Marital Status (Never Married)			1.00	…	1.00	…
Separated or divorced			1.01	0.95, 1.07	1.01	0.95, 1.07
Widowed			0.85	0.78, 0.92	0.85	0.79, 0.93
Married or common-law			0.74	0.70, 0.78	0.75	0.71, 0.79
Sense of Community Belonging (Very Weak)			1.00	…	1.00	…
Somewhat weak			0.56	0.53, 0.59	0.56	0.53, 0.59
Somewhat strong			0.34	0.32, 0.35	0.34	0.32, 0.36
Very strong			0.28	0.26, 0.30	0.28	0.27, 0.30
BMI (Healthy weight)			1.00	…	1.00	…
Overweight			1.06	1.01, 1.10	1.05	1.01, 1.10
Obese			1.51	1.44, 1.58	1.50	1.43, 1.57
Physically active days per week (None)			1.00	…	1.00	…
1 to 3 days			0.94	0.89, 0.99	0.94	0.89, 0.99
4 to 6 days			0.87	0.83, 0.92	0.87	0.82, 0.92
7 days			0.94	0.89, 0.99	0.94	0.89, 0.99
Smoking (Not at all)			1.00	…	1.00	…
Occasionally			1.34	1.24, 1.45	1.34	1.23, 1.45
Daily			1.66	1.59, 1.74	1.65	1.58, 1.73

Alcohol consumption (None)	1.00	…	1.00	…
Occasionally	0.86	0.81, 0.91	0.86	0.81, 0.91
Regularly	0.70	0.67, 0.74	0.70	0.67, 0.73
CCHS Cycle (2015)	1.00	…	1.00	…
2016	1.15	1.09, 1.21	1.15	1.09, 1.21
2017	1.21	1.14, 1.27	1.20	1.14, 1.27
2018	1.36	1.29, 1.43	1.36	1.29, 1.43
Ethnicity by Age			$p < .001$	
Ethnicity by Gender			$p = .018$	
Ethnicity by Education			$p < .001$	
Ethnicity by Income			$p < .001$	
Ethnicity by Immigration			$p < .001$	

Notes: CI, confidence interval; OR, odds ratio. An odds ratio of 1.00 is the baseline.

supportive evidence from the other interactions follows: adults (OR = 0.73 to 0.91), primary school only (OR = 0.67), and middle class incomes of $30,000 to $99,999 (OR = 0.54 to 0.71).

Table 32
Depiction of Ethnicity by Gender Interaction on Self-Rated Mental Health

	OR	95% CI
Gender		
Female	1.06	0.81, 1.34
Male	*0.74*	0.59, 1.05

Table 33
Depiction of Ethnicity by Age Interaction on Self-Rated Mental Health Status

	OR	95% CI
Age		
Emerging Adults (18 to 24)	1.23	0.75, 2.00
Adults (25 to 44)	*0.73*	0.52, 1.03
Older Adults (45 to 64)	*0.91*	0.62, 1.37
Seniors (65 or older)	1.37	0.72, 2.60

Table 34
Depiction of Ethnicity by Education Interaction on Self-Rated Mental Health

	OR	95% CI
Education		
Primary or less	*0.67*	0.23, 1.93
Some high school	0.94	0.46, 1.93
High school graduate	1.10	0.74, 1.64
Some post secondary	0.91	0.63, 1.32
Undergraduate degree	*0.73*	0.44, 1.22
Advanced degree	*0.61*	0.26, 1.43

Table 35
Depiction of Ethnicity by Income Interaction on Self-Rated Mental Health

	OR	95% CI
Income		
Less than $30,000	1.14	0.79, 1.63
$30,000 to $59,999	*0.71*	0.43, 1.15
$60,000 to $99,999	*0.54*	0.31, 0.96
$100,000 to $149,999	0.94	0.54, 1.65
$150,000 or more	1.79	1.03, 3.11

Table 36
Depiction of Ethnicity by Immigration Interaction on Self-Rated Mental Health

	OR	95% CI
Immigration		
Canadian-born	1.33	0.97, 1.83
10 or more years	0.87	0.63, 1.19
5 to 10 years	*0.15*	0.03, 0.63
Less than 5 years	*0.65*	0.21, 2.00

Predictors of Anxiety Disorders

As for hypothesis tests related to anxiety disorders, the first or main predictive hypothesis was consistently supported across all four models, perhaps best exemplified in Model 1 (OR = 0.71) and Model 4 (OR = 0.49) (Table 37). As for the second or moderator hypothesis, four significant interactions were detected, all providing at least some hypothetical support: ethnicity by age, education, income, and immigration (Tables 38 to 41). The strongest, most unequivocal support were the particular Latin American protections afforded Canada's newcomers who emigrated less than five years ago (OR = 0.32) or between five and ten years

Table 37
Predictors of Anxiety Disorders: Logistic Regression Models (N= 176,994)

Predictors of Anxiety Disorders	Model 1		Model 2		Model 3		Model 4	
Categories	OR	95% CI	OR	95%	OR	95% CI	OR	95% CI
Ethnicity (White)	1.00	…	1.00	…	1.00	…	1.00	…
Other	0.90	0.86, 0.94	0.91	0.87, 0.95	0.85	0.81, 0.90	0.56	0.47, 0.66
Latin-American	0.71	0.59, 0.86	0.86	0.71, 1.04	0.86	0.70, 1.06	0.49	0.33, 0.73
Age (Emerging Adults, 18 to 24)			1.00	…	1.00	…	1.00	…
Adults (25 to 44)			0.94	0.89, 1.00	0.92	0.86, 0.98	0.88	0.82, 0.94
Older Adults (45 to 64)			0.69	0.65, 0.73	0.68	0.64, 0.73	0.63	0.59, 0.68
Seniors (65 or older)			0.30	0.28, 0.32	0.38	0.35, 0.41	0.34	0.32, 0.37
Gender (Female)			1.00	…	1.00	…	1.00	…
Male			0.54	0.52, 0.56	0.48	0.46, 0.50	0.48	0.46, 0.50
Education (Primary or Less)			1.00	…	1.00	…	1.00	…
Some High School			1.17	1.07, 1.26	1.14	1.04, 1.25	1.16	1.06, 1.28
High School Graduate			1.03	0.96, 1.11	1.09	1.00, 1.19	1.12	1.03, 1.23
Some Post-Secondary			0.94	0.87, 1.01	1.03	0.94, 1.12	1.07	0.98, 1.17
Undergraduate Degree			0.68	0.62, 0.74	0.85	0.77, 0.94	0.89	0.81, 0.99
Advanced Degree			0.32	0.30, 0.34	0.94	0.84, 1.05	0.99	0.88, 1.12
Income (Less than $30,000)			1.00	…	1.00	…	1.00	…
$30,000 to $59,000			0.58	0.55, 0.60	0.64	0.61, 0.67	0.64	0.61, 0.67
$60,000 to $99,999			0.44	0.42, 0.46	0.54	0.51, 0.57	0.52	0.50, 0.55
$100,000 to $149,999			0.37	0.35, 0.39	0.49	0.46, 0.53	0.47	0.45, 0.51
$150,000 or more			0.32	0.30, 0.34	0.45	0.42, 0.48	0.43	0.40, 0.46

Immigration Years (Canadian Born)	1.00	…	1.00	…	1.00	…
10 or more years	0.68	0.64, 0.72	0.69	0.65, 0.74	0.77	0.72, 0.83
5 to 10 years	0.29	0.24, 0.34	0.33	0.27, 0.40	0.54	0.43, 0.68
Less than 5 years	0.28	0.14, 0.22	0.21	0.17, 0.27	0.46	0.35, 0.61
Official Language (Yes)	1.00	…	1.00	…	1.00	…
No	0.93	0.71, 1.21	0.59	0.39, 0.88	0.56	0.37, 0.85
Marital Status (Never Married)			1.00	…	1.00	…
Separated or divorced			1.05	1.00, 1.12	1.05	1.00, 1.11
Widowed			0.66	0.61, 0.72	0.66	0.61, 0.72
Married or common-law			0.82	0.78, 0.85	0.82	0.78, 0.86
Sense of Community Belonging (Very Weak)			1.00	…	1.00	…
Somewhat weak			0.61	0.58, 0.65	0.62	0.58, 0.65
Somewhat strong			0.44	0.42, 0.47	0.45	0.42, 0.47
Very strong			0.41	0.38, 0.43	0.41	0.38, 0.44
BMI (Healthy weight)			1.00	…	1.00	…
Overweight			1.15	1.11, 1.20	1.15	1.10, 1.20
Obese			1.47	1.41, 1.58	1.47	1.40, 1.53
Physically active days per week (None)			1.00	…	1.00	…
1 to 3 days			1.06	1.01, 1.12	1.06	1.01, 1.12
4 to 6 days			1.01	0.95, 1.06	1.00	0.95, 1.06
7 days			1.15	1.09, 1.21	1.14	1.08, 1.20
Smoking (Not at all)			1.00	…	1.00	…
Occasionally			1.55	1.44, 1.66	1.53	1.43, 1.64
Daily			1.87,	1.79, 1.95	1.85	1.78, 1.93

Alcohol consumption (None)	1.00	…	1.00	…
Occasionally	0.92	0.87, 0.97	0.92	0.87, 0.97
Regularly	0.74	0.71, 0.77	0.73	0.70, 0.77
CCHS Cycle (2015)	1.00	…	1.00	…
2016	1.14	1.09, 1.20	1.14	1.09, 1.20
2017	1.25	1.19, 1.32	1.25	1.19, 1.32
2018	1.27	1.21, 1.33	1.27	1.21, 1.33
Ethnicity by Age				$p < .001$
Ethnicity by Education				$p = .005$
Ethnicity by Income`				$p < .001$
Ethnicity by Immigration				$p < .001$

Notes: CI, confidence interval; OR, odds ratio. An odds ratio of 1.00 is the baseline.

Table 38
Depiction of Ethnicity by Age Interaction on Anxiety Disorders

	OR	95% CI
Age		
Emerging Adults (18 to 24)	*0.96*	0.58, 1.58
Adults (25 to 44)	*0.79*	0.58, 1.07
Older Adults (45 to 64)	*0.96*	0.65, 1.43
Seniors (65 or older)	1.52	0.78, 2.94

Table 39
Depiction of Ethnicity by Education Interaction on Anxiety Disorders

	OR	95% CI
Education		
Primary or less	1.87	0.74, 4.71
Some high school	*0.68*	0.33, 1.42
High school graduate	*0.82*	0.53, 1.25
Some post secondary	*0.74*	0.51, 1.07
Undergraduate degree	*0.83*	0.52, 1.32
Advanced degree	1.28	0.69, 2.38

Table 40
Depiction of Ethnicity by Income Interaction on Anxiety Disorders

	OR	95% CI
Income		
Less than $30,000	1.05	0.73, 1.51
$30,000 to $59,999	*0.61*	0.38, 1.00
$60,000 to $99,999	*0.53*	0.53, 0.92
$100, 000 to $149,999	1.11	0.67, 1.84
$150,000 or more	1.60	0.92, 2.78

Table 41
Depiction of Ethnicity by Immigration Interaction on Anxiety Disorders

	OR	95% CI
Immigration		
Canadian-born	1.25	0.73, 2.14
10 or more years	1.02	0.76, 1.37
5 to 10 years	*0.55*	0.24, 1.29
Less than 5 years	*0.32*	0.95, 1.12

(OR = 0.55). Again, some who were perhaps socioeconomically vulnerable were among the most protected, again that is, those with only some high school or a high school diploma, and lower middle to middle income earners. Also consistent with a developing pattern, older adults, aged 45 to 64 were another particularly protected group of Latin Americans. On age and education there were other, unanticipated groups that were very well protected, and so this was counter to the hypotheses.

Predictors of Mood Disorders

The pattern of findings related to mood disorders was quite similar to that of anxiety disorders. The first or main predictive hypothesis was consistently supported across all four models (Table 42). And three significant association moderations or interactions were detected: ethnicity by age, education, and immigration (Tables 43 to 45). Again, as shown in Table 45, the strongest support for the hypotheses was demonstrated in the ethnicity by immigration interaction by the large Latin American preventive fractions observed among the most recent immigrants (ORs of 0.46 and 0.68). Once more, Latin Americans with only some high school or a high school diploma, and older adults were among the most protected. And again, there were a

few unanticipated groups that were very well protected, and so counter to the hypothesis. For example, those with relatively higher education—some postsecondary (OR= 0.60) and undergraduate education (OR= 0.53) were well protected. Similarly, it was unanticipated that emerging adults (OR= 0.80) and adults (OR= 0.63) were more protected than seniors (OR= 1.17).

Table 42
Predictors of Mood Disorders: Logistic Regression Models (n = 177,015)

Predictors of Mood Disorders	Model 1		Model 2		Model 3		Model 4	
Categories	OR	95% CI	OR	95%	OR	95% CI	OR	95% CI
Ethnicity (White)	1.00	…	1.00	…	1.00	…	1.00	…
Other	0.84	0.81, 0.87	0.86	0.82, 0.90	0.80	0.76, 0.84	0.74	0.62, 0.89
Latin-American	0.66	0.55, 0.79	0.76	0.63, 0.93	0.76	0.62, 0.93	0.88	0.59, 1.30
Age (Emerging Adults, 18 to 24)			1.00	…	1.00	…	1.00	…
Adults (25 to 44)			1.10	1.04, 1.17	1.01	0.94, 1.09	0.98	0.92, 1.06
Older Adults (45 to 64)			1.11	1.04, 1.18	1.01	0.94, 1.09	0.96	0.89, 1.03
Seniors (65 or older)			0.49	0.46, 0.52	0.56	0.51, 0.60	0.52	0.48, 0.57
Gender (Female)			1.00	…	1.00	…	1.00	…
Male			0.60	0.58, 0.62	0.52	0.50, 0.54	0.52	0.50, 0.54
Education (Primary or Less)			1.00	…	1.00	…	1.00	…
Some High School			1.29	1.19, 1.40	1.22	1.12, 1.34	1.25	1.14, 1.37
High School Graduate			1.24	1.15, 1.34	1.27	1.17, 1.39	1.32	1.21, 1.45
Some Post-Secondary			1.19	1.11, 1.28	1.25	1.15, 1.36	1.32	1.21, 1.44
Undergraduate Degree			0.98	0.90, 1.06	1.21	1.10, 1.33	1.29	1.17, 1.43
Advanced Degree			1.14	1.03, 1.25	1.46	1.31, 1.65	1.59	1.42, 1.78
Income (Less than $30,000)			1.00	…	1.00	…	1.00	…
$30,000 to $59,000			0.52	0.50, 0.54	0.60	0.57, 0.62	0.60	0.57, 0.63
$60,000 to $99,999			0.40	0.38, 0.42	0.51	0.49, 0.54	0.51	0.49, 0.54
$100,000 to $149,999			0.32	0.30, 0.34	0.45	0.42, 0.48	0.45	0.42, 0.48
$150,000 or more			0.26	0.25, 0.28	0.40	0.37, 0.43	0.40	0.37, 0.43

Immigration Years (Canadian Born)	1.00	…	1.00	…	1.00	…
10 or more years	0.78	0.74, 0.83	0.80	0.76, 0.86	0.89	0.83, 0.95
5 to 10 years	0.41	0.34, 0.48	0.50	0.42, 0.60	0.79	0.65, 0.96
Less than 5 years	0.21	0.17, 0.26	0.26	0.21, 0.33	0.52	0.40, 0.67
Official Language (Yes)	1.00	…	1.00	…	1.00	…
No	1.07	0.85, 1.36	0.96	0.70, 1.31	0.90	0.66, 1.24
Marital Status (Never Married)			1.00	…	1.00	…
Separated or divorced			1.18	1.12, 1.24	1.18	1.12, 1.24
Widowed			0.69	0.64, 0.74	0.69	0.64, 0.74
Married or common-law			0.75	0.72, 0.79	0.75	0.72, 0.79
Sense of Community Belonging (Very Weak)			1.00	…	1.00	…
Somewhat weak			0.60	0.57, 0.64	0.61	0.58, 0.64
Somewhat strong			0.39	0.37, 0.42	0.40	0.38, 0.42
Very strong			0.31	0.29, 0.33	0.31	0.29, 0.33
BMI (Healthy weight)			1.00	…	1.00	…
Overweight			1.25	1.20, 1.30	1.25	1.20, 1.30
Obese			1.90	1.82, 1.98	1.89	1.81, 1.96
Physically active days per week (None)			1.00	…	1.00	…
1 to 3 days			1.08	1.03, 1.14	1.08	1.03, 1.14
4 to 6 days			1.00	0.94, 1.05	0.99	0.94, 1.04
7 days			1.11	1.06, 1.17	1.10	1.05, 1.16
Smoking (Not at all)			1.00	…	1.00	…
Occasionally			1.44	1.34, 1.55	1.43	1.33, 1.54
Daily			1.92	1.84, 2.00	1.90	1.83, 1.99

Alcohol consumption (None)	1.00	…	1.00	…
Occasionally	0.88	0.83, 0.92	0.87	0.83, 0.92
Regularly	0.71	0.68, 0.75	0.70	0.67, 0.74
CCHS Cycle (2015)	1.00	…	1.00	…
2016	1.10	1.05, 1.15	1.10	1.05, 1.15
2017	1.18	1.13, 1.24	1.18	1.13, 1.24
2018	1.17	1.11, 1.23	1.17	1.11, 1.23
Ethnicity by Age			$p < .001$	
Ethnicity by Education			$p < .001$	
Ethnicity by Immigration			$p < .001$	

Notes: CI, confidence interval; OR, odds ratio. An odds ratio of 1.00 is the baseline.

Table 43
Depiction of Ethnicity by Age Interaction on Mood Disorders

	OR	95% CI
Age		
Emerging Adults (18 to 24)	*0.80*	0.45, 1.43
Adults (25 to 44)	*0.63*	0.45, 0.88
Older Adults (45 to 64)	*0.91*	0.65, 1.29
Seniors (65 or older)	1.17	0.62, 2.21

Table 44
Depiction of Ethnicity by Education Interaction on Mood Disorders

	OR	95% CI
Education		
Primary or less	1.63	0.71, 3.77
Some high school	*0.97*	0.51, 1.86
High school graduate	*0.75*	0.49, 1.15
Some post secondary	*0.60*	0.41, 0.88
Undergraduate degree	*0.53*	0.32, 0.88
Advanced degree	1.25	0.71, 2.19

Table 45
Depiction of Ethnicity by Immigration Interaction on Mood Disorders

	OR	95% CI
Immigration		
Canadian-born	0.81	0.84, 0.94
10 or more years	0.70	0.52, 0.95
5 to 10 years	*0.46*	0.23, 0.93
Less than 5 years	*0.68*	0.27, 1.69

Predictors of Health Care Utilization

This section's outcomes now shift from health to health care, and in this section the focus is on prediction of having had a usual source of health care during the past year. Furthermore, interpretations will be based upon the now, well established, premise that Latin Americans in Canada seem to enjoy very consistent and large health status advantages, and so, their health care needs are assumed to be less than those, for example, of NLAW peoples. Such people with lesser health care needs could be further assumed to use such services less. In other words, the outcome of having a usual source of health care during the past year (probably not needed by many) is here treated as a proxy for health care utilization, not necessarily access or a lack thereof because of certain barriers to access. Admittedly, this hypothesis needs more rigorous testing to support this assertion; nonetheless, the exploration of the possibility of lower Latin American health care utilization based their equal or better than expected health and mental health performance should be considered.

As primarily hypothesized, Latin Americans seemed advantaged on health care, that is, probably needing less health care, they used less (ORs ranged from 0.35 to 0.65 in Models 1 to 4; Table 46). However, this did not seem a Latin American specific finding as the aggregated pattern of findings observed among those of diverse other ethnicities was nearly identical, their preventive fractions being slightly smaller (ORs ranged from 0.56 to 0.72). That is, the paradoxical findings were still most paradoxical among Latin Americans. Overall, as with the health outcomes, most of the previously established predictors as well as the potentially confounding or explanatory variables were associated with the outcome in predictable ways. However, especially in comparing Models 1 to 3, they, in fact, did not seem to account for much, if any, of the variability in the health care outcome.

Four interactions significantly entered Model 4, their pattern of findings being distinct

and interesting, perhaps a function of the changed focus here, from health to health care (Tables 47 to 50): ethnicity by age, gender, income, and immigration status. First, supportive of the hypotheses, seniors (OR = 0.62) and other than emerging adults (ORs of 0.57 and 0.75) with the

Table 46
Predictors of Health Care Use (HCU): Logistic Regression Models (n = 177,071)

Predictors of HCU	Model 1		Model 2		Model 3		Model 4	
Categories	OR	95% CI	OR	95%	OR	95% CI	OR	95% CI
Ethnicity (White)	1.00	…	1.00	…	1.00	…	1.00	…
Other	0.56	0.54, 0.57	0.72	0.69, 0.75	0.72	0.69, 0.74	0.58	0.52, 0.66
Latin-American	0.47	0.42, 0.52	0.65	0.58, 0.73	0.64	0.57, 0.73	0.35	0.27, 0.45
Age (Emerging Adults, 18 to 24)			1.00	…	1.00	…	1.00	…
Adults (25 to 44)			1.24	1.19, 1.30	1.01	0.96, 1.06	0.99	0.94, 1.04
Older Adults (45 to 64)			2.48	2.37, 2.60	1.88	1.78, 1.98	1.82	1.72, 1.93
Seniors (65 or older)			5.80	5.47, 6.08	3.63	3.40, 3.88	3.51	3.28, 3.77
Gender (Female)			1.00	…	1.00	…	1.00	…
Male			0.51	0.49, 0.52	0.53	0.51, 0.54	0.51	0.49, 0.52
Education (Primary or Less)			1.00	…	1.00	…	1.00	…
Some High School			1.06	0.98, 1.14	1.17	1.08, 1.27	1.17	1.08, 1.27
High School Graduate			1.23	1.15, 1.31	1.32	1.23, 1.42	1.32	1.23, 1.42
Some Post-Secondary			1.23	1.16, 1.32	1.32	1.23, 1.42	1.32	1.23, 1.42
Undergraduate Degree			1.23	1.14, 1.32	1.31	1.21, 1.42	1.46	1.38, 1.54
Advanced Degree			1.14	1.05, 1.23	1.22	1.12, 1.33	1.53	1.45, 1.63
Income (Less than $30,000)			1.00	…	1.00	…	1.00	…
$30,000 to $59,000			1.28	1.24, 1.33	1.16	1.11, 1.21	1.13	1.08, 1.18
$60,000 to $99,999			1.63	1.57, 1.70	1.35	1.29, 1.41	1.30	1.24, 1.36
$100,000 to $149,999			1.98	1.89, 2.07	1.53	1.46, 1.61	1.46	1.38, 1.54
$150,000 or more			2.13	2.03, 2.23	1.62	1.54, 1.72	1.53	1.45, 1.63

Immigration Years (Canadian Born)	1.00	…	1.00	…	1.00	…
10 or more years	1.27	1.21, 1.33	1.22	1.16, 1.28	1.10	1.05, 1.16
5 to 10 years	1.07	0.98, 1.17	0.92	0.84, 1.00	0.67	0.60, 0.75
Less than 5 years	0.62	0.57, 0.67	0.50	0.46, 0.55	0.31	0.27, 0.35
Official Language (Yes)	1.00	…	1.00	…	1.00	…
No	1.15	0.96, 1.38	1.10	0.89, 1.36	1.07	0.87, 1.33
Marital Status (Never Married)			1.00	…	1.00	…
Separated or divorced			1.32	1.26, 1.39	1.32	1.26, 1.39
Widowed			1.45	1.35, 1.56	1.44	1.34, 1.55
Married or common-law			1.56	1.50, 1.61	1.56	1.51, 1.62
Sense of Community Belonging (Very Weak)			1.00	…	1.00	…
Somewhat weak			1.07	1.02, 1.13	1.07	1.02, 1.12
Somewhat strong			1.42	1.35, 1.49	1.41	1.34, 1.48
Very strong			1.58	1.49, 1.67	1.57	1.49, 1.67
BMI (Healthy weight)			1.00	…	1.00	…
Overweight			1.13	1.09, 1.16	1.13	1.09, 1.17
Obese			1.32	1.27, 1.37	1.33	1.28, 1.38
Physically active days per week (None)			1.00	…	1.00	…
1 to 3 days			1.00	0.96, 1.05	1.01	0.96, 1.05
4 to 6 days			0.97	0.93, 1.05	0.98	0.93, 1.02
7 days			0.91	0.87, 0.95	0.91	0.88, 0.95
Smoking (Not at all)			1.00	…	1.00	…
Occasionally			0.82	0.77, 0.86	0.82	0.77, 0.87
Daily			0.67	0.65, 0.70	0.68	0.65, 0.70

Alcohol consumption (None)	1.00	…	1.00	…
Occasionally	1.00	0.95, 1.05	1.00	0.96, 1.05
Regularly	0.92	0.89, 0.96	0.93	0.89, 0.97
CCHS Cycle (2015)	1.00	…	1.00	…
2016	1.01	0.97, 1.05	1.01	0.97, 1.05
2017	1.10	1.06, 1.14	1.09	1.06, 1.14
2018	1.14	1.09, 1.18	1.13	1.09, 1.88
Ethnicity by Age			$p < .001$	
Ethnicity by Gender			$p < .001$	
Ethnicity by Income			$p < .001$	
Ethnicity by Immigration			$p < .001$	

Notes: CI, confidence interval; OR, odds ratio. An odds ratio of 1.00 is the baseline. Model was systematically replicated with the addition of self-rated health. Findings were similar.

Table 47
Depiction of Ethnicity by Age Interaction on Health Care Use

	OR	95% CI
Age		
Emerging Adults (18 to 24)	0.84	0.61, 1.19
Adults (25 to 44)	*0.57*	0.48, 0.66
Older Adults (45 to 64)	*0.75*	0.57, 1.99
Seniors (65 or older)	*0.62*	0.34, 1.17

Table 48
Depiction of Ethnicity by Gender Interaction on Health Care Use

	OR	95% CI
Gender		
Female	*0.56*	0.46, 0.66
Male	0.71	0.71, 0.85

Table 49
Depiction of Ethnicity by Income Interaction on Health Care Use

	OR	95% CI
Income		
Less than $30,000	*0.58*	0.44, 0.76
$30,000 to $59,999	*0.53*	0.42, 0.67
$60,000 to $99,999	0.75	0.58, 0.96
$100,000 to $149,999	0.80	0.57, 1.13
$150,000 or more	0.72	0.49, 1.06

Table 50
Depiction of Ethnicity by Immigration Interaction on Health Care Use

	OR	95% CI
Immigration		
Canadian-born	*0.65*	0.52, 0.82
10 or more years	*0.81*	0.66, 0.99
5 to 10 years	0.99	0.70, 1.41
Less than 5 years	1.02	0.71, 1.45

lowest incomes (ORs of 0.53 and 0.58) seemed most advantage. Second, quite the opposite of this study's hypotheses, the most paradoxically protective effects on this health care outcome were among Latin American women (OR = 0.56) and Latin Americans who were either born in Canada (OR = 0.65) or emigrated to Canada ten or more years ago.

Predictors of Mental Health Care Utilization

Similar to the main hypothesis-relevant finds on health care use, these on mental health care use—having consulted a mental health professional during the past year—were similarly supportive, but slightly less paradoxical (Table 51). Furthermore, three of the five secondary moderator hypotheses were supported as they significantly entered Model 4, and they were, at least in part, theoretically supportive: ethnicity by age, education, and immigration status (Table 52 to 54). Evidence of the deepest, most paradoxical associations were, as theorized, observed among the most recent immigrants (ORs of 0.45 and 0.58), with the lowest levels of educational attainment (ORs of 0.60 and 0.82). Also, though not noted among the oldest or most senior participants, substantial protections seemed evident among adults 25 to 44 years of age (OR = 0.76). A summary of findings for Hypotheses 1 and 2 are found in Tables 55 and 56.

Table 51
Predictors of Mental Health Care Use (MHCU): Logistic Regression Models (n = 177,133)

Predictors of MHCU	Model 1		Model 2		Model 3		Model 4	
Categories	OR	95% CI	OR	95%	OR	95% CI	OR	95% CI
Ethnicity (White)	1.00	…	1.00	…	1.00	…	1.00	…
Other	0.82	0.79, 0.86	0.78	0.74, 0.82	0.74	0.70, 0.79	0.75	0.63, 0.90
Latin-American	0.77	0.65, 0.92	0.84	0.70, 1.00	0.82	0.68, 1.00	1.10	0.74, 1.65
Age (Emerging Adults, 18 to 24)			1.00	…	1.00	…	1.00	…
Adults (25 to 44)			1.06	1.00, 1.12	1.13	1.06, 1.21	1.11	1.04, 1.19
Older Adults (45 to 64)			0.75	0.71, 0.80	0.78	0.73, 0.84	0.75	0.70, 0.81
Seniors (65 or older)			0.29	0.27, 0.31	0.35	0.32, 0.38	0.33	0.31, 0.37
Gender (Female)			1.00	…	1.00	…	1.00	…
Male			0.52	0.51, 0.54	0.49	0.47, 0.51	0.49	0.47, 0.51
Education (Primary or Less)			1.00	…	1.00	…	1.00	…
Some High School			1.06	0.96, 1.17	1.01	0.91, 1.12	1.03	0.93, 1.15
High School Graduate			1.07	0.98, 1.18	1.11	1.01, 1.22	1.15	1.04, 1.27
Some Post-Secondary			1.27	1.16, 1.38	1.31	1.19, 1.14	1.37	1.25, 1.51
Undergraduate Degree			1.37	1.25, 1.50	1.49	1.35, 1.65	1.59	1.44, 1.77
Advanced Degree			1.74	1.57, 1.92	1.91	1.71, 2.14	2.07	1.85, 2.32
Income (Less than $30,000)			1.00	…	1.00	…	1.00	…
$30,000 to $59,000			0.65	0.62, 0.68	0.72	0.68, 0.75	0.72	0.68, 0.76
$60,000 to $99,999			0.55	0.52, 0.58	0.67	0.64, 0.71	0.67	0.64, 0.71
$100 000 to $149,999			0.48	0.45, 0.50	0.64, 0.60, 0.68		0.64	0.60, 0.68
$150,000 or more			0.40	0.38, 0.43	0.57	0.53, 0.61	0.57	0.53, 0.61

Immigration Years (Canadian Born)	1.00	…	1.00	…	1.00	…
10 or more years	0.67	0.63, 0.72	0.69	0.65, 0.74	0.76	0.71, 0.81
5 to 10 years	0.40	0.34, 0.47	0.46	0.40, 0.55	0.69	0.57, 0.83
Less than 5 years	0.27	0.23, 0.33	0.32	0.26, 0.39	0.57	0.46, 0.72
Official Language (Yes)	1.00	…	1.00	…	1.00	…
No	0.53	0.36, 0.78	0.61	0.40, 0.93	0.57	0.37, 0.87
Marital Status (Never Married)			1.00	…	1.00	…
Separated or divorced			1.20	1.13, 1.27	1.20	1.13, 1.27
Widowed			0.94	0.87, 1.02	0.95	0.87, 1.03
Married or common-law			0.76	0.72, 0.79	0.76	0.72, 0.79
Sense of Community Belonging (Very Weak)			1.00	…	1.00	…
Somewhat weak			0.76	0.71, 0.80	0.76	0.72, 0.81
Somewhat strong			0.60	0.57, 0.64	0.60	0.57, 0.64
Very strong			0.52	0.48, 0.55	0.52	0.48, 0.55
BMI (Healthy weight)			1.00	…	1.00	…
Overweight			1.07	1.03, 1.12	1.07	1.03, 1.12
Obese			1.31	1.26, 1.37	1.30	1.25, 1.36
Physically active days per week (None)			1.00	…	1.00	…
1 to 3 days			1.11	1.06, 1.17	1.11	1.05, 1.17
4 to 6 days			1.06	1.00, 1.12	1.05	1.00, 1.11
7 days			1.13	1.07, 1.19	1.12	1.06, 1.18
Smoking (Not at all)			1.00	…	1.00	…
Occasionally			1.31	1.22, 1.41	1.30	1.21, 1.39
Daily			1.42	1.36, 1.49	1.41	1.35, 1.47

Alcohol consumption (None)	1.00	…	1.00	…
Occasionally	0.97	0.92, 1.03	0.96	0.91, 1.02
Regularly	0.90	0.86, 0.95	0.89	0.85, 0.93
CCHS Cycle (2015)	1.00	…	1.00	…
2016	1.00	0.96, 1.04	1.00	0.96, 1.04
2017	0.24	0.23, 0.25	0.24	0.23, 0.25
2018	0.24	0.23, 0.26	0.24	0.23, 0.26
Ethnicity by Age			$p < .001$	
Ethnicity by Education			$p < .001$	
Ethnicity by Immigration			$p < .001$	

Notes: CI, confidence interval; OR, odds ratio. An odds ratio of 1.00 is the baseline.

Table 52
Depiction of Ethnicity by Age Interaction on Mental Health Care Use

	OR	95% CI
Age		
Emerging Adults (18 to 24)	0.84	0.50, 1.41
Adults (25 to 44)	*0.76*	0.58, 0.99
Older Adults (45 to 64)	0.92	0.62, 1.36
Seniors (65 or older)	1.18	0.53, 2.58

Table 53
Depiction of Ethnicity by Education Interaction on Mental Health Care Use

	OR	95% CI
Education		
Primary or less	*0.60*	0.14, 2.60
Some high school	*0.82*	0.36, 1.84
High school graduate	1.12	0.76, 1.66
Some post secondary	*0.56*	0.38, 0.84
Undergraduate degree	*0.87*	0.60, 1.26
Advanced degree	0.98	0.46, 1.44

Table 54
Depiction of Ethnicity by Immigration Interaction on Mental Health Care Use

	OR	95% CI
Immigration		
Canadian-born	*0.55*	0.37, 0.82
10 or more years	0.97	0.74, 1.28
5 to 10 years	*0.45*	0.24, 0.86
Less than 5 years	*0.58*	0.27, 1.25

Table 55: Summary of Findings for Hypothesis #1

Hypothesis #1: The HHP will appear in Latin Americans in Canada as demonstrated by their equal to or better than expected health and mental health outcomes and by their consequent lower health care use compared to non-Latin American whites and other racialized groups. This hypothesis will be tested across ten measures of health, mental health, and health care:

Outcome	Hypothesis Supported (Yes/No)
Self-Reported Health	Yes
Cancer	Yes
Heart Disease	Yes
Diabetes	Yes
Hypertension	Yes
Self-Rated Mental Health	Yes
Mood Disorders	Yes
Anxiety Disorders	Yes
Health Care Use	Yes
Mental Health Care Use	Yes

Table 56: Summary of Findings for Statistically Significant Interactions in Hypothesis #2

Hypothesis #2: Latin American ethnicity will interact with age, gender, education, income, and immigration to potentiate the protections afforded older individuals, men, those with low education, those with low incomes, and those who have most recently emigrated to Canada.

Outcome/Interaction	Hypothesis (Full/Partial/No Support)	Outcome/Interaction	Hypothesis (Full/Partial/No Support)
Diabetes		**Self-Rated Mental Health**	
Ethnicity by Age	Partial Support	Ethnicity by Age	Partial Support
Ethnicity by Gender	Full Support	Ethnicity by Gender	Full Support
Ethnicity by Income	Partial Support	Ethnicity by Education	Partial Support
Ethnicity by Immigration	Partial Support	Ethnicity by Income	Partial Support
		Ethnicity by Immigration	Partial Support
Self-Reported Health		**Anxiety Disorders**	
Ethnicity by Age	Partial Support	Ethnicity by Age	Partial Support
Ethnicity by Education	Partial Support	Ethnicity by Education	Partial Support
Ethnicity by Immigration	Partial Support	Ethnicity by Income	Partial Support
		Ethnicity by Immigration	Full Support
Heart Disease		**Mood Disorders**	
Ethnicity by Immigration	Partial Support	Ethnicity by Age	Partial Support
		Ethnicity by Education	Partial Support
		Ethnicity by Immigration	Partial Support
Cancer		**Health Care Utilization**	
Ethnicity by Gender	Full Support	Ethnicity by Age	Partial Support
Ethnicity by Education	Partial Support	Ethnicity by Gender	No Support
Ethnicity by Income	Partial Support	Ethnicity by Income	Partial Support
Ethnicity by Immigration	Full Support	Ethnicity by Immigration	Partial Support
Hypertension		**Mental Health Care Utilization**	
Ethnicity by Gender	No Support	Ethnicity by Age	Partial Support
Ethnicity by Education	Partial Support	Ethnicity by Education	Partial Support
Ethnicity by Income	Full Support	Ethnicity by Immigration	Partial Support

Ethnicity by Immigration	Partial Support		

Note: Of the 50 interactions tested, 35 were statistically significant, 33 providing at least some evidence in the hypothesized direction.

Chapter 5: Discussion

Summary and Interpretations

This research study represents a unique empirical investigation of the HHP, as well as one of the limited number of studies that contribute to our understanding of the health and mental health outcomes among Latin American individuals living in Canada. It specifically assessed the existence of the HHP among a group of Latin American adults who reside in Canada. Both main effect and interaction effect hypotheses were tested across ten physical health, mental health, and health care use outcomes: 1) The HHP will be evident in Latin Americans in Canada as demonstrated by their equal to or better than expected health and mental health outcomes and by their lower health care utilization compared to non-Latin American whites and other racialized ethnic groups; 2) Latin American ethnicity will interact with age, gender, education, income, and immigration to potentiate the protections afforded older individuals, men, those with low education, those with low incomes, and those who have most recently emigrated to Canada.

Due to its focus on Latin Americans living in Canada, this study provides several noteworthy insights and significant findings. As previously discussed, most of our knowledge regarding Latin Americans draws upon the American literature. This, of course, is primarily the result of a substantially larger Latin American population in the US compared to Canada. We know, however, that Latin Americans in Canada and the US do not share the same demographic characteristics and immigration histories. For example, Latin Americans residing in Canada generally exhibit a younger age profile, possess higher educational attainments, and include a greater proportion of more recent immigrants and refugees, as compared to their

counterparts in the US (Semega et al., 2020; Armony, 2017; 2014; Ginieniewicz, 2014; Statistics Canada, 2007).

Further, Latin Americans in Canada are relatively equally represented by individuals from Mexico (17.8%), Colombia (14.2%), and El Salvador (11.9%; Armony, 2014). This study's Latin American subsample was similar in that the top three countries represented were also Mexico (13.3%), Colombia (15.3%), and El Salvador (9.7%). This is substantially different compared to Latin Americans in the US who are predominantly represented by individuals from Mexico (61.4%), followed by Puerto Rican (9.6 percent), Central American (9.8 percent), South American (6.4 percent), and Cuban (3.9 percent; OMH, 2021). Of course, even though Latin Americans in Canada and the US share many cultural and demographic similarities, they are not the same. This analysis supports the available Canadian literature indicating that Latin Americans in Canada have a different profile compared to their American counterparts. Therefore, the insights gained from this study could provide a valuable contribution to our understanding of the health and well-being of Latin American individuals living in Canada.

Latin American Demographics in Canada

Data from the current study demonstrated that nearly two thirds of Latin Americans in Canada were comparatively younger (18 to 44 years of age) compared to NLAW and other racialized groups. Even among the eldest of the study sample (65 years and older), Latin Americans represented the smallest percentage of individuals. The study sample was nearly equally represented by both men and women. Further, data supported previous knowledge indicating that Latin Americans are highly educated (Statistics Canada, 2007) with this study indicating Latin Americans (36.9%) reporting greater educational attainment of an undergraduate

or postsecondary advanced degree compared to NLAW (21.5%) and other racialized groups (30.2%).

They were also found to make up the greatest proportion of the lowest income quintile (< $30,000) compared to NLAW. Interestingly, the vast majority of Latin Americans in this study—nearly three quarters—were long-term Latin Americans, that is Canadian-born or in Canada for more than 10 years. Furthermore, most Latin Americans in this study reported having knowledge of English or French and the majority resided in the provinces of Ontario and Quebec. Study findings also indicate that more than half of Latin Americans were either married or in common-law unions with a strong sense of community belonging.

With regards to positive health behaviours, this Latin American sample was highly active—more than half of the total sample reporting being physically active at least four days per week and the majority reporting not smoking at all (86.4%). However, this Latin American sample was also associated with high-risk health behaviours. For example, more than half of Latin Americans were also either overweight or obese (57%) and were more likely to consume alcohol on a regular basis (61.9%). These findings add to our existing knowledge of Latin Americans in Canada and point to some vulnerabilities (e.g., high BMI and alcohol consumption) and resiliencies (e.g., high physical activity and low rates of smoking) which may impact their overall health. Finally, these sample descriptive findings set the limits of this study's generalizability. That is, these are the people—Latin American adults in Canada—to whom this study's inferences, main and moderating effects, and findings can most confidently be applied.

Main Effects of Physical Health

This analysis supports the HHP literature that asserts that despite socioeconomic disadvantages, paradoxically, Latin Americans display an equality with or even advantages over NLAW and over other racialized minority groups across a wide range of health outcomes. Results revealed the existence of the HHP in Canada across all ten outcomes, that is Latin American Canadians were equally or better advantaged on physical health, mental health, and health care utilization compared to NLAW.

In line with the hypothesis—the HHP will appear in Latin Americans in Canada as demonstrated by their equal to or better than expected health—Latin Americans were advantaged over NLAW and other racialized groups on diabetes. After controlling for any potential confounds, Latin Americans were eighty percent less likely to report diabetes compared to NLAW and approximately sixty percent less likely compared to other racialized groups. Similarly, Latin Americans were advantaged over NLAW in hypertension. This was also true in comparison to other racialized groups. The HHP was also evident in self-rated health, cancer diagnosis, and heart disease as demonstrated by Latin Americans equal odds compared to NLAW and other racialized groups.

Main Effects of Mental Health

Findings from this study also supported the HHP in the realm of mental health—one of the most understudied areas of the HHP. For example, Latin Americans were nearly two thirds less likely to self-rate their mental health as poor compared to NLAW. This was also evident in comparison to other racialized groups who were only a third less likely to self-rate their mental health as poor compared to NLAW. Similarly, Latin Americans in Canada were 50% less likely

to report an anxiety disorder diagnosis compared to NLAW. They were also more advantaged compared to other racialized groups who were 40% less likely to report an anxiety disorder diagnosis compared to NLAW. Further, Latin Americans and NLAW in Canada were equally likely to experience a mood disorder. In this analysis, the hypothesis was not supported in comparison to other racialized groups. Here, it was other racialized groups who were most protected, with 25% lower odds of having a mood disorder compared to Latin Americans and NLAW. Finally, this study's main hypothesis, that is, support for Latin American advantages or the HHP was also observed for the two health care and mental health care outcomes. In summary, all 10 systematic replications of this study's main hypothesis found support for the HHP in comparing Latin Americans with NLAW people, nine of 10 of which seemed to be either completely Latin American-specific (diabetes, hypertension, self reported general health status, and self reported mental health status) or they demonstrated greater paradoxical protections among Latin Americans than those observed among aggregated other minoritized ethnic group members (heart disease, cancer, anxiety disorders, mood disorders, and health care utilization).

Health and Mental Health Interactions

Social work has long emphasized the importance of studying interactions (de Smidt & Gorey, 1997; Lundahl, Yafe, & Hobson, 2009), and have urged for a more comprehensive examination of "interlocking systems of privilege and oppression" (Bowleg, 2012; Hulko, 2009). Thus, the significance of such interconnected principles was highlighted by this study. If it had solely focused on main effects, one could have wrongly concluded that gender, education, income, age, and immigration do not matter. Findings in this study, however, demonstrate that

interactions matter. Moreover, the analysis of all of these interactions also affirm that Latin Americans are not a homogenous group. Rather, important differences exist that must be taken into consideration in comprehensively understanding their health and mental health.

Previous, primarily US research, suggested the following interactions. Latin American ethnicity will interact with age, gender, education, income, and immigration to potentiate the protections afforded men, older people, those with low incomes, those with low education, and those who have most recently emigrated to Canada. This study's series of second or moderator hypotheses tested them in the Canadian context, finding substantial support for such interactions across all ten health outcomes. As for sample description, such moderations underscore the great diversity of Latin Americans in Canada. Clearly, they are not a homogenous people. Furthermore, the strongest support was observed for those interactions with the most supportive, prior US-based evidence, that is, ethnicity by immigration and income (Teruya, & Bazargan-Hejazi, 2013; Ruiz et al., 2013). The deepest, strongest, most paradoxical or protective effects were observed among those Latin Americans in Canada who might stand to benefit most, that is, those with very low to lower middle-class incomes, and among those Latin American who most recently emigrated, the group least likely to have acculturated themselves to Canada. Similarly, another group that seemed preferentially protected was older Latin American adults between the ages of 45 and 64. This finding also fits previous empirical evidence and theory as they are a group probably less likely to acculturate, for example, than otherwise similar, but younger Latin American youths to emergent adults. Finally, two, probably interrelated, groups in particular seemed associated with findings contrary to the hypotheses: seniors and those who only obtained a primary school education. Such may be groups with health disadvantages largely

insurmountable by any potential Latin American protections.

The following is a note on how evidence related to the 50 interactions was summarized. Each interaction was categorized as providing full support or partial support for the hypotheses or as being contrary to the hypotheses. Full support would be exemplified by an ethnicity by income interaction, where, as hypothesized, the lowest income group demonstrated the most paradoxical or protective health effect. Partial support would be exemplified by an ethnicity by income interaction, where, not necessarily the lowest income group, but perhaps a relatively low to lower middle class income group demonstrated the most paradoxical or protective health effect. Also, in this "partially supported" group, in addition to a hypothetically supportive group, another counter to the hypothesis finding may have been noted (e.g., a more protective paradoxical effect observed among a high-income group). If only such counter to the hypothesis finding was observed that interaction would be deemed unsupported. Using these criteria, of the 50 interactions tested, 35 were statistically significant, 31 providing at some partially supportive evidence in the hypothesized direction, and of those 12 provided full, unequivocal support. A comprehensive summary of specific interaction findings follows.

Specific interactions. First, the significant interaction effect of ethnicity by immigration was observed for all 10 outcomes in the present study. The observed interaction indicated that, in most cases, the most recent Latin American immigrants (*less than 10 years*) were comparatively more protected than other immigrant groups. For example, they were relatively less likely to experience cancer, heart disease, mood disorders, anxiety disorders, self-rate their health as *poor* or *fair*, and self-rate their mental health as *poor* or *fair*. Contrary to the hypothesized associations, however, although still more protected than NLAW and other racialized groups, the

most recent of Latin Americans they were not always the most protected. For example, Canadian-born Latin Americans and immigrants in Canada for more than ten years were relatively more protected from diabetes and hypertension. Finally, the ethnicity-immigration interaction on heath care use was counter to the hypothesis, while the same interaction on mental health care was supportive.

The ethnicity by immigration interaction results might suggest that any advantage found for Latin Americans is due to the Healthy Migrant Effect (HME) hypothesis, which proposes that recent immigrants generally have better health outcomes than their Canadian-born counterparts (Elshahat et al., 2022). However, based on the overall findings of this study, Latin Americans stood apart across most of the studies outcomes. A more plausible explanation, therefore, is that other important mechanisms uniquely contribute to the HHP beyond just immigration status. Future qualitative research endeavors could offer valuable insights into the intricate nature of the immigration and acculturation experiences and their ramifications for physical and mental well-being. Additionally, subsequent primary quantitative investigations may provide a deeper understanding of the connections between immigration and health or mental health.

Second, the significant ethnicity by education interaction was observed for seven out of 10 of this study's health outcomes. Overall, lower educational attainment was associated with greater protections of cancer, hypertension, self-rated health, self-rated mental health, anxiety disorders, mood disorders, and mental health care utilization. Contrary to the hypothesized associations, however, sometimes higher educational attainment was also often found to be protective. Such was the case in the analysis of cancer, self-rated health, and self-rated mental health. Again, in contrast to the hypothesized association, lowest educational attainment was

sometimes associated with greatest risk in hypertension, anxiety disorders, and mood disorders. Although not expected, this is consistent with the literature which tells us that there is a large and persistent association between education and health in that greater educational attainment is associated with better health (Cutler & Lleras-Muney, 2006; Zajacova & Lawrence, 2018). Provocatively, however, observed protections seemed to be most found in Latin American high school graduates or Latin Americans with at least some high school education.

Future research could consider studying the impact of education on health beyond just attainment. This study, for example, found that the highest educational attainment was not always associated with the greatest health or mental health protections. Thus, potentially indicating that the benefits of education on health go beyond just attainment. Of course, although educational attainment is a crucial endpoint, it is also the culmination of a comprehensive process of formal education (Zajacova & Lawrence, 2018). Factors such as quality, content, peers, and teachers influence education trajectories and could, therefore, also impact health over the course of an individual's life (Cutler & Lleras-Muney, 2006; Burke & Sass, 2013; Rockoff, 2004). Comprehending such factors and how they relate to health outcomes is pertinent for policymaking since it can determine the optimal course of action for interventions. For example, this understanding can help ascertain whether the focus should be on enhancing educational attainment or prioritizing the improvement of quality, or the educational process to generate maximum health benefits.

Third, the significant ethnicity by age interaction was observed for seven out of the 10 health and mental health outcomes in this study. Although some support was most typically found among older Latin Americans (ages 45 to 64), such as in the diabetes analysis, the eldest

of Latin Americans were not always the most protected. In fact, they seemed to be at higher risk of diabetes, poorer self-rated health, poor self-rated mental health, mood disorders, and anxiety disorders. This, of course, did not support the hypothesis that oldest Latin Americans would be most protected. It would seem that—consistent with much of the literature on aging and health (Jaul & Barron, 2017), age is a significant predictor of ill health even for Latin Americans. In this study, it seemed that Latin Americans between the ages of 45 to 64 seemed to be the relatively most protected.

Future research should pay closer attention to acculturation as influenced by age and time of arrival in the destination country. No adequate measures of acculturation were available in the CCHS secondary data to explore in this analysis. The literature tells us, however, that acculturation in the Latin American community matters. Acculturation formally refers to "those phenomena which result when groups of individuals having different cultures come into continuous first-hand contact, with subsequent changes in the original culture patterns of either or both groups" (Redfield et al., 1936, p. 149). Studies have highlighted the influence of age at migration and duration of time spent in a resettlement environment on the process of acculturation.

According to developmental perspectives, immigrants who move to a new country at a younger age may acculturate more rapidly than those who migrate later in life. Similarly, individuals who have spent a longer duration in their host country may display greater levels of acculturation, as they have had more exposure to the norms, attitudes, and traditions of the destination culture (Cobb et al., 2021; Cheung et al., 2011; Cuellar et al., 2004; Martinez et al., 2011; Stevens, 2006; Titzmann & Lee, 2018). It seems plausible, therefore, that age when taken

into account with acculturation may still offer important insights into the HHP.

Fourth, the significant ethnicity by income interaction was observed for six out of the 10 health and mental health indicators. The interaction revealed that, generally, Latin Americans with the lowest incomes (*less than $60,000: lowest to lower middle income*) were indeed most protected. Such was the case in the analysis of diabetes, cancer, hypertension, self-rated mental health, anxiety disorders, and health care use. This provides strong support for the HHP, in that the lowest socioeconomic statuses were associated with greatest protections. Paradoxical indeed.

Fifth, the significant ethnicity by gender interaction was observed in five out of the 10 health and mental health outcomes of this study. As hypothesized and consistent with previous US findings (Escobar et al., 2019), it was observed that Latin American men were overall more protected than Latin American women in diabetes, cancer, and self-rated mental health. Women were slightly more protected with regards to hypertension and health care use. This significant ethnicity by gender interaction—and all other significant interactions in this study—affirms Bowleg's assertion that an intersectionality framework is a vital critical theory for public health (2021). Without this framework, there is a risk of drawing inaccurate and even detrimental conclusions on population health.

Health Care and Mental Health Care Utilization: Further Insights

Health Care Utilization. The data found that both Latin Americans and other racialized minority groups were significantly less likely to utilize health care compared to NLAW. Even after adjusting for demographic and confounding variables, Latin Americans were nearly two thirds less likely to utilize health care. Moreover, such findings support the germinal findings of Latin American health care utilization in the Canadian literature (Siddiqui, 2016). Results from

this study also found that other racialized minority groups were less likely—about 42% less likely to utilize health care compared to NLAW. This finding is consistent with the Canadian literature which posits that racialized minorities—particularly immigrants—are often less likely to utilize health care.

For example, studies conducted in Canada have suggested that racialized immigrants are more likely to lack a regular doctor (Siddiqi et al., 2016), encounter greater difficulties in accessing immediate care for minor health issues (Sanmartin and Ross, 2006), have fewer visits to specialized care services including outpatient specialty visits, non-emergency surgery, and selected diagnostic tests (Statistics Canada, 2016), lower utilization of hospital services (Ng et al., 2014), and fewer preventive care services (Lebrun and Dubay, 2010) when compared to non-immigrant Canadians. The most paradoxical findings in this study, nevertheless, were still most paradoxical among Latin Americans. Future research could analytically account and control for self-rated health and self-rated mental health as potential predictors and covariates. This could provide greater confidence in the association of better than expected health and lower health care and mental health care utilization.

In addition, four statistically significant interactions were found—ethnicity by age, gender, income, and immigration status. Findings in support of the hypotheses suggested that Latin American adults, that is, all but emerging adults with the lowest incomes were the most advantaged. Previous research has suggested that aging is associated with higher rates of illness and consequently greater healthcare utilization (Fulmer et al., 2021), which makes these findings particularly noteworthy. Unexpectedly, however, results indicated that Latin American women who were born in Canada or had immigrated to Canada ten or more years ago were also

advantaged. There may be unique factors with this group that contribute to their advantage associated with their unique immigration histories that warrant further exploration and understanding.

Mental Health Care Utilization. This research found results that were supportive in a similar manner to health care utilization, albeit slightly less paradoxical, of the HHP's impact on the use of mental health care services. Furthermore, three interactions were supportive of the HHP. The study observed that the most paradoxical links were evident among the least educated Latin Americans who had most recently arrived in Canada. These results contradict findings in the mental health care utilization literature that posit that individuals with higher education attainment are more likely to use services than individuals with lower educational attainment (Steel et al., 2007). But they are consistent with elements of the HHP theory that have suggested the greatest protections among the most socioeconomically vulnerable, low educational attainment being one proxy for low socioeconomic status. These findings again indicate that Latin Americans may not conform to the established patterns observed in the broader North American population, emphasizing the significance of examining distinct racialized groups as separate entities. This underscores the importance of conducting research that takes into account the unique experiences of various minority groups. Finally, counter to the hypothesis advantages seemed evident among emergent to young adults.

Salmon Bias Effect in Canada

The results of this study potentially contradict the claims of Pablos- Méndez (1994) that the reason why Latin Americans experience better than expected health is because of a sample selection bias. It’s believed that as a result of more affordable health care in their countries of

origin, Latin Americans are more likely to return to their home countries when they are older or severely ill. This tendency to die in one's birthplace, therefore, leads to such illnesses or deaths not appropriately recorded in US statistics; thus, "[S]ome individuals are rendered statistically immortal" (p.1237). We know, however, that Canada has a much more robust social welfare state (Béland & Waddan, 2019; 2017) and a more accessible health care system (Siddiqi et al., 2016) compared to the US. We also know that Latin Americans in Canada are more likely to be refugees of poverty, war, and political violence (Saphir, 2008) and generally have lower incomes compared to national averages in Canada (Statistics Canada, 2007). One would expect that these factors—greater access to health care in particular—would persuade Latin Americans to remain in Canada rather than to return back home for medical care. Future research could investigate whether or not Latin Americans in Canada return to their home countries for health care and mental health care to test the salmon bias hypothesis in Canada.

These two factors therefore—Canada's social welfare state and universal health care compared to their home countries—makes it unlikely that the salmon bias effect serves as an explanation for the HHP in Canada as it might in the US. Data from the current study confirmed that Latin Americans in Canada were more economically disadvantaged compared to NLAW and other racialized groups; yet, contrary to the salmon bias hypothesis, Latin Americans in Canada paradoxically experienced an equality with or even advantages over NLAW and over other racialized minority groups across all studied physical, mental health, and health care access variables. This surely extends this field's knowledge of the HHP beyond the US allowing for a less confounded exploration of the HHP.

Implications for Social Epidemiological Advancement

The Hispanic Health Paradox (HHP) continues to be a research area that warrants further investigation and is likely not attributed to a solitary and distinct cause. Perhaps it is time, however, to move beyond examining whether or not the HHP exists and begin to explore the mechanisms that operate this paradoxical phenomenon. The present study was able to extend this field's knowledge beyond the US by allowing for a less confounded test of the HHP. For instance, potential biases due to the "healthy migrant effect" and so-called "salmon bias" were less potent in Canada than in the US. As previously discussed, the HME describes the trend whereby, in a given host country, immigrants tend to have better overall health compared to non-immigrant populations. One would expect, therefore, that the most recent Latin American immigrants to be most protected across diverse health or mental health outcomes. The results from this study, however, do not unequivocally support this theory as evidenced by the most recent of Latin Americans being the most vulnerable on certain outcomes. The most typically protected seemed, in fact, to be those who relatively recently emigrated five to 10 years ago, not most recently within the past five years. Similarly, evidence for the HHP was found under Canada's universal health care system. Although support for the salmon bias is more plausible in the US given the differential access to health care, immigration legal status, lack of insurance, and language barriers, this study did not support the salmon bias hypothesis.

In the context of health disparities, the fact that Latin Americans do not have consistent patterns of health, mental health, or access to care calls for more research. Through this study's multivariate analysis of several interaction effects, it is clear that the HHP is not necessarily a universal phenomenon that applies to all Latin Americans. Special attention should be focused on

differences related to age, gender, education, income, and immigration history. Disaggregating Latin American subgroups will enhance our understanding of Latin American health, mental health, health care usage, and prevention, especially among Latin American women, older Latin Americans, most recent immigrant Latin Americans, and the most impoverished Latin Americans who were found to be some of the most disadvantaged subgroups in this study. Notably, these findings offer an interesting perspective in that although universal health care can be a great equalizer of disparities, they still nonetheless persist. These findings strongly support the implementation of universal health insurance in the US and the reinforcement of the existing system in Canada.

Implication for Social Work Practice

Social workers are faced with the demand of providing empirically-supported services to a growing diverse population. The Canadian Association of Social Workers' (CASW) *Code of Ethics* (2005) is a set of guidelines that outlines ethical standards and values that social workers should uphold. According to these standards, social workers are required to recognize and respect the diversity of Canadian society, taking into account the breadth of differences that exist among individuals, families, groups, and communities. How can this field, however, truly uphold this value and ethical standard if most of this field's knowledge and evidence-based practice is largely dependent on research that is not representative of Canada's ethnically and culturally diverse population? Without a doubt, competency will remain limited as long as knowledge and intervention methods rely solely on research done with the mainstream culture. This study is a contribution to our knowledge of the diverse health, mental health, and health care of Latin American people.

Additionally, the strength perspective is an important approach within social work practice. The extensive and ever-growing body of resilience literature prompts us to recognize and value the qualities, traits, virtues, and resources that individuals develop, acquire, and accumulate as they confront and overcome challenges in their lives (DesJardine et al., 2019; Ginsburgh et al., 2015; Luthar, 2015). The strengths perspective, acknowledges this reality, goes further to require that we understand and accept that every individual, family, group, or community possesses external and internal assets, competencies, and resources that can be leveraged towards achieving positive impact.

Professor of social work and social welfare, Dennie Saleebey, eloquently said "*We are called to venerate the remarkable abundance of human experience, to acknowledge that every individual, family, and community has an array of capacities and skills, talents and gifts, wiles and wisdom that, in the end are the bricks and mortar of change*" (2000, pp. 127). This study has profoundly endeavoured to venerate the remarkable resilience of Latin American people who have endured and survived a long history of colonization, civil unrest, poverty, violence, and discrimination. Contextualized vulnerabilities matter and ought to be appropriately addressed, but resiliencies matter too. This study calls upon social workers to support the resiliency of Latin American peoples in a number of practical ways and uphold the Code of Ethics of the Canadian Association of Social Worker, particularly with regards to the principles and values associated with 1) Respect for the inherent dignity and worth of persons, 2) pursuit of social justice, 3) service to humanity (CASW, 2005). The full Code of Ethics can be found in Appendix C.

1. Build on cultural strengths: Social workers can help to identify, acknowledge, and build on the cultural strengths of Latin Americans by recognizing the importance of

family and community to promote their health and mental health when working directly with this community. Social workers can support Latin American clients and communities by helping them develop self-awareness of their strengths, values, and aspirations. This process can enable Latin Americans to understand their capabilities and potential, fostering a sense of self-confidence and self-efficacy. Further, social workers can work towards establishing trusting and supportive relationships with Latin American communities by learning about their history, culture, and values which can serve as a foundation for empowerment. Finally, social workers can utilize a strength-based approach to develop and implement interventions at the micro, mezzo, and macro levels of practice that focuses on the strengths of this community rather than just the issues and challenges.

2. Addressing systemic barriers: Social workers can advocate for changes in policies and practices that create barriers for Latin Americans and their communities. This might involve addressing issues such as racism, discrimination, and poverty.
3. Providing culturally responsive services: Social workers can provide services that are responsive to the unique cultural needs of Latin Americans. This might involve providing services in Spanish, or working with interpreters or cultural brokers to ensure that services are accessible and culturally appropriate.

Furthermore, social workers play a critical role in addressing social disparities—particularly in health and mental health—by better understanding the social determinants of health that contribute to these disparities. This study contributes to the already established literature in the US that racial health disparities exist even within Canada's universal health care

system. Social workers must work to address such disparities by advocating for policies that address these issues, provide resources to individuals and communities, and work to create programs that promote health equity. Further, social work must be culturally responsive in order to work effectively with diverse populations. This means understanding and respecting the cultural beliefs, values, and practices of difference ethnic and cultural backgrounds.

Beyond just cultural responsiveness in practice, however, social work education should reflect this diversity not only in course content, but also in faculty representation. This could very practically be more representative of social work's commitment to diversity. Moreover, addressing barriers to education and advocating for Latin American students can help diversify the social work workforce. Research has shown that clients are more likely to engage in services and experience positive outcomes when they are matched with social workers who share their cultural background and/or speak their language (Borelli et al., 2019; Constantine et al., 2005; Spring et al., 2020). Supporting Latin American social work students, therefore, could be an important step moving forward. In addition, having a diverse workforce can help to reduce biases and stereotypes, and promote cultural humility and competence. Overall, social workers play a critical role in addressing racial health disparities. They must be equipped with the knowledge, skills, and resources to effectively address the social determinants of health and promote health equity for all individuals and communities.

Implications for Social Policy

Social policy has a significant impact on the lives of individuals, families, and communities (Aragones et al., 2021; Escobar et al., 2019; Siddiqui et al., 2016; Martinez et al., 2015). It can be an important tool for achieving social justice and addressing systemic

inequalities—such as those found in health care. Social workers are often at the forefront of advocating for policy changes that can positively impact the people they serve. As such, social workers need to be knowledgeable about social policies and their potential effects on vulnerable populations (Mullaly & Dupre, 2019). Social workers can engage in policy development, analysis, and advocacy to promote equitable policies that support the well-being of those they serve. This study's findings in support of the HHP challenges traditional assumptions about the relationship between socioeconomic status, race, and health.

Although Latin Americans may have lower incomes and lower educational attainment than other groups, particularly in the US, they also tend to have stronger family and social networks, and engage in healthier behaviors (United States Census Bureau, 2022; Semega et al., 2020; Shrider et al., 2021; Kimbro, 2009). These factors suggest that social policies aimed at improving social support, access to healthy foods, safe environments, and promoting healthy behaviors may have a greater impact on health outcomes than policies focused solely on increasing income or education. Additionally, the paradox highlights the need for more research on the cultural and social factors that contribute to the better health outcomes of Latin Americans. This research can inform the development of culturally appropriate health policies and preventative practices. For example, social workers can engage in developing targeted programs that reduce the inequalities experienced by Latin American seniors and Latin Americans with low educational attainment.

This could include increasing awareness and training of health care and mental health care providers about the vulnerabilities of Latin American seniors, including family members in treatment planning, and increasing supply of Latin American and culturally sensitive

practitioners. Furthermore, social workers can help navigate complex health and mental health systems by providing information about available resources, and assist in overcoming language or cultural barriers that may hinder access to care. When it comes to supporting Latin Americans with limited educational attainment, social workers can collaborate with Latin American communities to create and advocate for programs and services that are responsive to their unique needs. By doing so, they can contribute to reducing dropout rates and enhancing access to high-quality education programs that are specifically tailored to the community. Social workers can also engage families in the educational process, fostering meaningful involvement and establishing a strong support system. Furthermore, they can advocate for increased investments in education that empower Latin Americans to pursue higher education opportunities. Through these efforts, social workers actively promote educational equity and provide avenues for personal and academic growth within the Latin American community.

Overall, the Hispanic Health Paradox serves as a reminder that health outcomes are shaped by a complex interplay of social, economic, and cultural factors, and that social policies must take these factors into account if they are to effectively promote health equity and reduce health disparities.

Limitations of the Current Study

While secondary data analysis offers many advantages, such as being cost-effective and time-efficient, there are also several limitations that should be considered. For example, not all variables and measures of interest were available to study the HHP in the CCHS used in this study. One of the most potentially important variables for the development of evidence on the HHP is death (Markides & Eschbach, 2005; Ruiz et al., 2013). This study of diverse morbidities

did not address mortality. Additionally, some researchers have hypothesized that diet and nutrition could play a central role in explaining the HHP (Gordon-Larsen et al., 2003; Perez-Escamilla & Putnik, 2007). Again, the CCHS did not adequately provide a measure of these variables and therefore they could not be considered in this analysis. This inevitably restricted the ability to conduct a more comprehensive analysis of the HHP. Additionally, another limitation of this study was that the CCHS relies on self-reported data, which can be subject to recall bias, social desirability bias, or other types of response bias. Lastly, another important limitation of this study is that Latin American ethnicity was not disaggregated by country of origin. This was primarily because of the administrative constraints of time and funding while completing this study. Nevertheless, future such studies of the heterogeneity of Latin Americans in Canada would compliment and enhanced this study's findings and our overall understanding of the HHP.

Future Research Directions

Though much has been learned about the HHP, there is still much that is unknown. Here are some potential future research directions for the Hispanic Health Paradox:

Examining Subgroups

Latin Americans represent a diverse group of individuals with various ethnic backgrounds, including but not limited to Mexican, Puerto Rican, Cuban, Salvadoran, Dominican, Guatemalan, Colombian, Venezuelan, Argentinean, and many more. Each group has its unique cultural and religious traditions and customs. Additionally, although Spanish is the primary language in Latin America, there is linguistic diversity within this community including Brazilian Portuguese, French, and various indigenous dialects. Future research could examine

differences in health, mental health, and health care and mental health care outcomes between different Latin American subgroups by country of origin, indigeneity, and language.

The literature on the HHP and Latin American subgroups has found that health outcome differences based on country of origin exists. For example, in their study Palloni and Arias found that paradoxical advantages on mortality were more prominent for foreign-born Mexicans and other-foreign born Latin Americans—not of Puerto Rican or Cuban descent (2004). Similarly, in their theses, Hicks observed that Puerto Ricans consistently demonstrate some of the most unfavorable health rates in various areas of physical well-being compared to other Latin American groups (2012). A notable example is their elevated incidence of heart disease, with rates surpassing those of any other Latin American subgroup by 20% (Hicks, 2012; Rosenwaike, 1987). Furthermore, other studies indicate that Puerto Ricans, particularly women, exhibit higher levels of obesity compared to Cubans and Mexican Americans (Rivera and Burgos, 2010). Additionally, Puerto Ricans appear to have slightly higher prevalence rates of conditions such as diabetes, hypertension, and asthma compared to other racial and ethnic groups (Rivera and Burgos, 2010). Moreover, evidence suggests that Puerto Ricans self-report higher rates of bronchitis when compared to Mexican Americans and Cubans (Rivera and Burgos, 2010).

More recently, Zamora and colleagues (2019) observed significant heterogenous findings in Latin American subgroups. They compared cancer mortality among Latin Americans who identified as Mexican, Puerto Rican, Cuban, and Central or South American and found liver cancer disproportionately affects Puerto Ricans and Mexicans (2019). Further, they noted that stomach cancer was particularly higher among Central and South Americans, Mexicans, and Puerto Ricans (2019). Additionally, Cuban and Puerto Rican women were found to be most

negatively affected by breast cancer mortality among the Latin American population (2019). Undoubtedly, in order to gain a comprehensive understanding of the health within the diverse Latin American population, it is essential to conduct disaggregated analysis. Such analysis is crucial for effective prevention and control initiatives.

Intersectionality

The HHP intersects with other social determinants of health, as evidenced by this study's findings. Future research should continue to examine how these intersections associated with age, gender, education, income, and immigration status impacts health outcomes for Latin American communities. Additionally, interactions associated with differences by provinces and territories in Canada could be explored. Although federal government plays a key role in health care policy by establishing and implementing national standards for the healthcare system—as outlined in the Canada Health Act and providing financial assistance to the provinces and territories—it is the provinces and territories who administer and deliver most of Canada's health care services (Government of Canada, 2019). As a result, each province and territory can administer and deliver their health care services differently which may impact individuals and communities differently.

Community Factors

The emergence of the HHP has led some researchers to look beyond individual-level factors and consider community-level factors that may help explain the phenomenon. Similar to the HHP, Latin American neighbourhoods appear to be advantaged on health outcomes despite similar at-risk profiles of other marginalized communities (Eschbach, 2004; Palloni & Arias 2004; Haas et al., 2008). Unlike the population density and health literature of African

Americans, Latin American neighbourhoods appear to experience better health despite similar risk factors associated with concentrated poverty or violence (Williams et al., 2001; Palloni & Arias 2004; Haas et al., 2008). This phenomenon—referred to as the "barrio (*neighbourhood*) advantage" amongst Latin American communities—contradicts the negative health effects of ethnic segregation that one would expect. Future research on the HHP of Latin Americans in Canada should examine community-level factors such as neighbourhood population density, social support networks, and cultural norms around family and community. This study initially intended to study this important community-level factor, but regrettably was unable to due to data being unavailable at the time of data analysis of this study. In order to investigate community-level factors, the CCHS would be joined with Canadian census data. Each respondent would essentially be joined to Canadian census-based measures of socioeconomic status by their postal code. In this way neighborhood measures of poverty would be constructed and joined with CCHS data. This important joining of CCHS and census data; however, required complex technical support which could not be provided at the RDC at the time of analysis. It is this author's intention, however, to continue to work with the RDC and complete this analysis as part of her academic research agenda.

Impact of Covid-19

The COVID-19 pandemic has had a significant impact on public health, with Latin Americans being disproportionately affected in both Canada and the US (Moya et al., 2022). Future research should examine the impact of the COVID-19 pandemic on the HHP. Emerging research suggests that as a result of the pandemic the HHP has diminished (Sáenz & Garcia, 2021). It may be that Latin American protections are most relevant to chronic diseases that may

be most amenable to social and lifestyle interventions. Whereas pre-epidemiologic transition, infectious diseases, perhaps especially viral illnesses, may be less so.

Vulnerable Groups

While this study acknowledges the remarkable resilience of Latin American peoples, it does not deny the presence of vulnerabilities within this community. As mentioned earlier, two specific groups exhibited findings that contradicted the hypotheses: seniors and individuals with only a primary school education. In essence, Latin American seniors and those with limited educational attainment were discovered to have the least protection and higher vulnerability in terms of health, mental health, and access to healthcare and mental healthcare services. In the future, research endeavors, particularly those employing qualitative or mixed methods approaches, could prove invaluable in constructing theories that shed light on the experiences of Latin American seniors and individuals with low education. Such investigations would aid in comprehending the challenges faced by these groups, thereby guiding the planning and implementation of interventions.

Longitudinal Studies

Much of the research on the HHP has been cross-sectional, which limits the ability to draw causal inferences. Future research could use longitudinal designs to examine how changes in social and environmental factors impact health outcomes over time. Overall, future research on the Hispanic Health Paradox should focus on understanding the complex factors that contribute to better health outcomes for Latin Americans, identifying strategies to reduce health disparities, and promoting health equity for all.

Summary of Future Research Needs

Admittedly, this study's second set of moderator hypotheses was essentially a hypothesis-driven exploration of the experiences of 21 subsamples of Latin Americans in, what for this field, represents a relatively new quantitative research context, Canada. They were: men and women; ages 18 to 24, 25 to 44, 45 to 64, or 65 or older; with educational attainments that ranged across six categories from less than a primary school education to the attainment of an advanced graduate degree; who resided in households that ranged across five annual income categories that were quite low (< $30,000) to quite high ($150,000 or more); and who were born in Canada or emigrated here 10 or more years ago, five to 10 years ago, or were newcomers to Canada, having arrived here less than five years ago. Having served their descriptive epidemiologic purpose, the diffuse study of this many groups across ten outcomes probably costs this study some power and perhaps also resulted in some, uncontrolled, residual confounding. Next studies in this field it seems would benefit from increased specificity.

Such specificity, precision and so confidence may be gained in a number of ways. First, future primary investigations may benefit from focused study of more specific study groups and outcomes, perhaps focusing on the most potentially vulnerable Latin American populations and the most preventable or policy-significant outcomes. Second, specificity and so, more confident knowledge may be advanced by studying more specific groups of Latin Americans in Canada, perhaps focusing on their most prevalent country or region of nativities. Also, the use of more specific comparison groups that do not confound the experiences of NLAW people and members of other diverse racialize/ethnic groups could serve the same purpose. Third, as has been mentioned, the use of valid measures of dietary factors as well as social, familial and community supports in primary research contexts would, most assuredly, advance explanations for the HHP

in Canada. These ought to include culturally sensitive measures of such constructs as *familismo* and neighborhood or community-based measures of potential "barrio advantages." That is, ethnic enclaves of Latin Americans in Canada, ought to be incorporated into this field's future primary research designs, cross-sectional and longitudinal. I aim to be one of those doing this research during the pre-tenure phase of my, hoped for, academic social work career.

Concluding Remarks

This research aimed at advancing scientific knowledge on the HHP beyond the US. Evidence for the HHP was found across all studied health, mental health, and health or mental health care in Canada. That is, Latin Americans in Canada experienced better or equal outcomes despite greater at-risk profiles. Furthermore, this study contradicts the often-cited HME and salmon bias explanations of the HHP, which were found to be less potent in Canada. Additionally, important intersectional differences were observed indicating that the HHP is not a universal phenomenon experienced across all Latin Americans. Special attention to age, gender, education, income, and immigration should be considered. Further, despite the limitations posed by secondary data analysis methods, this study provides a good foundation to spur future research to examine other health and mental health outcomes—such as mortality—and consider other important variables—such as diet and social supports, familial and community—that could not be included in this analysis. Lastly, this study underscores the significance of adopting an intersectionality framework in social work and public health to promote health equity for all.

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Appendix A: Mean Substitution of Missing Data on BMI

Predictors of Diabetes: Logistic Regression Models (n = 183,669)

Predictors Categories	Model 1 OR	95% CI	Model 2 OR	95%	Model 3 OR	95% CI	Model 4 OR	95% CI
Ethnicity (White)	1.00	…	1.00	…	1.00	…	1.00	…
Other	0.98	0.94, 1.02	1.54	1.46, 1.61	1.43	1.36, 1.51	0.83	0.66, 1.06
Latin American	0.46	0.37, 0.58	0.93	0.74, 1.18	0.82	0.64, 1.06	0.21	0.12, 0.36
Age (Emerging Adult 18to 24)			1.00	…	1.00	…	1.00	…
Adults, 25 to 44			3.52	2.88, 4.31	2.60	2.10, 3.21	2.45	1.99, 3.03
Older Adults, 45 to 64			16.06	13.21, 19.52	10.83	8.81, 13.30	9.94	8.05, 12.26
Seniors, 65 or older			29.21	24.03, 35.51	19.18	15.58, 23.60	17.48	14.11, 21.65
Gender (Female)			1.00	…	1.00	…	1.00	…
Male			1.45	1.41, 1.50	1.56	1.50, 1.61	1.59	1.53, 1.765
Education (Primary or less)			1.00	…	1.00	…	1.00	…
Some high school			1.01	0.95, 1.07	1.08	1.01, 1.16	1.08	1.01, 1.16
High school graduate			0.81	0.76, 0.86	0.96	0.90, 1.03	0.96	0.89, 1.03
Some postsecondary			0.78	0.74, 0.83	0.94	0.88, 1.01	0.94	0.88, 1.00
Undergraduate degree			0.59	0.55, 0.63	0.85	0.78, 0.92	0.84	0.77, 0.91
Graduate degree			0.52	0.48, 0.57	0.76	0.69, 0.84	0.76	0.69, 0.84
Income (Less than $30,000)			1.00	…	1.00	…	1.00	…
$30,000 to $59,000			0.78	0.75, 0.82	0.80	0.77, 0.84	0.79	0.76, 0.83

$60,000 to $99,999	0.73	0.69, 0.76	0.77	0.73, 0.81	0.75	0.71, 0.79
$100,000 to $149,999	0.63	0.60, 0.67	0.68	0.64, 0.73	0.66	0.61, 0.70
$150,000 or more	0.53	0.49, 0.56	0.59	0.55, 0.64	0.56	0.52, 0.61
Immigration (Canadian born)	1.00	…	1.00	…	1.00	…
10 years or more	1.00	0.95, 1.05	1.08	1.02, 1.13	0.98	0.92, 1.04
5 to 10 years	0.76	0.63, 0.91	0.73	0.60, 0.88	0.48	0.38, 0.62
Less than 5 years	0.76	0.62, 0.92	0.73	0.61, 0.93	0.38	0.27, 0.52
Official Language (Yes)	1.00	…	1.00	…	1.00	…
No	1.11	0.94, 1.33	1.10	0.88, 1.37	1.01	0.81, 1.27
Marital Status (Single never married)			1.00	…	1.00	…
Separated or divorced			1.05	0.98, 1.12	1.05	0.98, 1.12
Widowed			1.13	1.06, 1.21	1.13	1.06, 1.21
Married or common-law			1.08	1.02, 1.14	1.08	1.02, 1.14
Sense of community belonging (Very weak)			1.00	…	1.00	…
Somewhat weak			0.96	0.90, 1.03	0.96	0.89, 1.02
Somewhat strong			0.91	0.86, 0.97	0.91	0.85, 0.97
Very strong			0.90	0.83, 0.95	0.89	0.83, 0.95
BMI (Normal weight)			1.00	…		
Overweight			2.00	1.91, 2.10	2.02	1.93, 2.11
Obese			4.37	4.17, 4.58	4.42	4.22, 4.63
Physically active days per week (None)			1.00	…	1.00	…
1 to 3 days			0.81	0.77, 0.85	0.81	0.77, 0.85
4 to 6 days			0.67	0.64, 0.71	0.68	0.64, 0.71
7 days			0.73	0.70, 0.77	0.74	0.70, 0.77

Smoking (Not at all)	1.00	…	1.00	…
Occasionally	0.97	0.88, 1.07	0.98	0.89, 1.08
Daily	0.97	0.92, 1.02	0.98	0.93, 1.03
Alcohol consumption (None)	1.00	…	1.00	…
Occasionally	0.90	0.86, 0.94	0.90	0.86, 0.95
Regularly	0.51	0.49, 0.53	0.51	0.49, 0.54
CCHS Cycle (2015)	1.00	…	1.00	…
2016	1.05	1.00, 1.10	1.05	1.00, 1.10
2017	1.08	1.03, 1.13	1.08	1.02, 1.13
2018	1.07	1.02, 1.13	1.07	1.02, 1.13
Ethnicity by Age				$p = .008$
Ethnicity by Gender				$p = .004$
Ethnicity by Income				$p = .002$
Ethnicity by Immigration				$p < .001$

Notes: CI, confidence interval; OR, odds ratio. An odds ratio of 1.00 is the baseline. Ethnicity by education was significant when entered alone, but not when entered with the other interactions. Model 3 Nagelkerke R^2 = 20.5%. Model 4 Nagelkerke R^2 = 20.%. Little's MCAR test χ^2 (1)= 0.023, $p = .87$.

Appendix B: Imputation of Missing Data

Predictors of Diabetes: Logistic Regression Models (n = 203,754)

Predictors Categories	Model 2 OR	95%	Model 3 OR	95% CI	Model 4 OR	95% CI
Ethnicity (White)	1.00	…	1.00	…	1.00	…
Other	1.46	1.39, 1.53	1.37	1.31, 1.44	0.78	0.62, 0.98
Latin American	0.90	0.72, 1.14	0.81	0.64, 1.03	0.20	0.12, 0.32
Age (Emerging Adult 18 to 24)	1.00	…	1.00	…		
Adults, 25 to 44	3.40	2.80, 4.14	2.89	2.04, 3.03	2.37	1.93, 2.90
Older Adults, 45 to 64	15.54	12.84, 18.80	10.23	8.42, 12.42	9.44	7.73, 11.54
Seniors, 65 or older	28.23	23.33, 34.16	18.50	15.20, 22.52	16.94	13.81, 20.77
Gender (Female)	1.00	…	1.00	…	1.00	…
Male	1.45	1.41, 1.50	1.55	1.50, 1.60	1.59	1.53, 1.65
Education (Some high school or less)	1.00	…	1.00	…	1.00	…
High school graduate	0.80	0.77, 0.84	0.90	0.86, 1.94	0.90	0.86, 0.95
Some postsecondary	0.77	0.74, 0.81	0.89	0.85, 0.93	0.89	0.85, 0.93
Post Grad +	0.56	0.53, 0.60	0.77	0.73, 0.82	0.77	0.73, 0.81
Income (Less than $30,000)	1.00	…	1.00	…		
$30,000 to $59,000	0.80	0.76, 0.83	0.83	0.79, 0.87	0.81	0.77, 0.85
$60,000 to $99,999	0.74	0.70, 0.77	0.80	0.76, 0.84	0.76	0.73, 0.81
$100,000 to $149,999	0.65	0.61, 0.69	0.72	0.67, 0.76	0.67	0.63, 0.72

$150,000 or more	0.54	0.51, 0.58	0.63	0.58, 0.67	0.58	0.53, 0.62
Immigration (Canadian born)	1.00	…	1.00	…		
10 years or more	1.00	0.95, 1.05	1.08	1.03, 1.14	1.00	0.95, 1.06
5 to 10 years	0.80	0.67, 0.95	0.80	0.67, 0.96	0.55	0.44, 0.68
Less than 5 years	0.79	0.65, 0.95	0.81	0.67, 0.98	0.44	0.33, 0.59
Official Language (Yes)	1.00	…	1.00	…		
No	1.01	0.85, 1.20	1.08	0.89, 1.32	1.07	0.89, 1.28
Marital Status (Single never married)			1.00	…	1.00	…
Separated/Widowed/Divorced			1.08	1.02, 1.14	1.08	1.02, 1.14
Married or common-law			1.07	1.01, 1.13	1.07	1.02, 1.13
Sense of community belonging (Very weak)			1.00	…	1.00	…
Somewhat weak			0.97	0.91, 1.04	0.97	0.90, 1.03
Somewhat strong			0.93	0.87, 0.98	0.92	0.86, 0.98
Very strong			0.91	0.85, 0.97	0.90	0.84, 0.96
BMI (Normal weight)			1.00	…		
Overweight			1.93	1.84, 2.02	1.94	1.85, 2.03
Obese			4.29	4.10, 4.49	4.33	4.14, 4.54
Physically active days per week (None)			1.00	…	1.00	…
1 to 3 days			0.82	0.78, 0.86	0.82	0.78, 0.86
4 to 6 days			0.68	0.65, 0.72	0.68	0.65, 0.72
7 days			0.74	0.71, 0.78	0.74	0.71, 0.78
Smoking (Not at all)			1.00	…	1.00	…

Occasionally	0.97	0.88, 1.07	0.98	0.89, 1.07
Daily	0.97	0.93, 1.02	0.98	0.93, 1.03
Alcohol consumption (None)	1.00	…	1.00	…
Occasionally	0.90	0.86, 0.94	0.90	0.86, 0.94
Regularly	0.51	0.49, 0.53	0.52	0.50, 0.54
CCHS Cycle (2015)	1.00	…	1.00	…
2016	1.03	0.99, 1.08	1.03	0.99, 1.08
2017	1.08	1.03, 1.13	1.07	1.02, 1.12
2018	1.07	1.02, 1.12	1.06	1.01, 1.11
Ethnicity by Age				$p = .002$
Ethnicity by Gender				$p < .001$
Ethnicity by Income				$p <. 001$
Ethnicity by Immigration				$p < .001$

Notes: CI, confidence interval; OR, odds ratio. An odds ratio of 1.00 is the baseline. Ethnicity by education was significant when entered alone, but not when entered with the other interactions. Model 3 Nagelkerke R^2 = 20.6%. Model 4 Nagelkerke R^2 = 20.8%

Appendix C: The Canadian Association of Social Worker's Code of Ethics

CODE OF ETHICS
2005

Ce document est disponible en français.

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Acknowledgements

The Canadian Association of Social Workers (CASW) acknowledges with thanks the National Association of Social Workers (NASW) for permission to use sections of the copyrighted NASW 1999 *Code of Ethics* in the development of theCASW 2005 *Code of Ethics* and CASW 2005 *Guidelines for Ethical Practice*.

The CASW also acknowledges that other codes of ethics and resources were used in the development of this *Code* and the *Guidelines for Ethical Practice*, inparticular the *Code of Ethics* of the Australian Association of Social Workers (AASW). These resources can be found in the Reference section of each document.

Purpose of the CASW Code of Ethics

Ethical behaviour lies at the core of every profession. The Canadian Associationof Social Workers (CASW) *Code of Ethics* sets forth values and principles to guide social workers' professional conduct. A code of ethics cannot guarantee ethical behaviour. Ethical behaviour comes from a social worker's individual commitment to engage in ethical practice. Both the spirit and the letter of this *Code of Ethics* will guide social workers as they act in good faith and with a genuine desire to make sound judgements.

This *Code of Ethics* is consistent with the International Federation of Social Workers (IFSW) *International Declaration of Ethical Principles of Social Work* (1994, 2004), which requires members of the CASW to uphold the values and principles established by both the CASW and the IFSW. Other individuals, organizations and bodies (such as regulatory boards, professional liability insurance providers, courts of law, boards of directors of organizations employingsocial workers and government agencies) may also choose to adopt this *Code of Ethics* or use it as a basis for evaluating professional conduct. In Canada, each province and territory is responsible for regulating the professional conduct of social workers to ensure the protection of the public. Social workers are advisedto contact the regulatory body in their province or territory to determine whetherit has adopted this *Code of Ethics*. [1]

Recognition of Individual and Professional Diversity

The CASW *Code of Ethics* does not provide a set of rules that prescribe how social workers should act in all situations. Further, the *Code of Ethics*does not specify which values and principles are most important andwhich outweigh others in instances of conflict. Reasonable differences of opinion exist among social workers with respect to which values andprinciples should be given priority in a particular situation. Further, a social worker's personal values, culture, religious beliefs, practices and/or other important distinctions, such as age, ability, gender or sexual orientation can affect his/her ethical choices. Thus, social workers need to be aware of any conflicts between personal and professional values and deal with them responsibly.

[1] To find the IFSW declarations or information about your relevant regulatory body, visit theCASW web site: http://www.casw-acts.ca

Ethical Behaviour Requires Due Consideration of Issues and Judgement

Social work is a multifaceted profession. As professionals, social workers are educated to exercise judgement in the face of complex and competing interests and claims. Ethical decision-making in a given situation will involve the informed judgement of the individual social worker. Instances may arise when social workers' ethical obligations conflict with agency policies, or relevant laws or regulations. When such conflicts occur, social workers shall make a responsible effort to resolve the conflicts in a manner that is consistent with the values and principles expressed in this *Code of Ethics*. If a reasonable resolution of the conflict does not appear possible, social workers shall seek appropriate consultation before making a decision. This may involve consultation with an ethics committee, a regulatory body, a knowledgeable colleague, supervisor or legal counsel.

Preamble

The social work profession is dedicated to the welfare and self-realization of all people; the development and disciplined use of scientific and professional knowledge; the development of resources and skills to meet individual, group, national and international changing needs and aspirations; and the achievement of social justice for all. The profession has a particular interest in the needs and empowerment of people who are vulnerable, oppressed, and/or living in poverty. Social workers are committed to human rights as enshrined in Canadian law, as well as in international conventions on human rights created or supported by the United Nations.

As professionals in a country that upholds respect for diversity, and in keeping with democratic rights and freedoms, social workers respect the distinct systems of beliefs and lifestyles of individuals, families, groups, communities and nations without prejudice (United Nations Centre for Human Rights, 1992). Specifically, social workers do not tolerate discrimination[2] based on age, abilities, ethnic background, gender, language, marital status, national ancestry, political affiliation, race, religion, sexual orientation or socio-economic status.

[2] Throughout this document the term "discrimination" refers to treating people unfavourably or holding negative or prejudicial attitudes based on discernable differences or stereotypes. It does **not refer** to the positive intent behind programs, such as affirmative action, where one group may be given preferential treatment to address inequities created by discrimination.

Core Social Work Values and Principles

Social workers uphold the following core social work values:

Value 1: Respect for Inherent Dignity and Worth of Persons

Value 2: Pursuit of Social Justice

Value 3: Service to Humanity

Value 4: Integrity of Professional Practice

Value 5: Confidentiality in Professional Practice

Value 6: Competence in Professional Practice

The following section describes each of these values and discusses their under-lying principles.

Value 1: Respect for the Inherent Dignity and Worth of Persons

Social work is founded on a long-standing commitment to respect the inherent dignity and individual worth of all persons. When required by lawto override a client's wishes, social workers take care to use the minimum coercion required. Social workers recognize and respect the diversity of Canadian society, taking into account the breadth of differences that exist among individuals, families, groups and communities. Social workers uphold the human rights of individuals and groups as expressed in The *Canadian Charter of Rights and Freedoms* (1982) and the United Nations *Universal Declaration of Human Rights* (1948).

Principles:

- Social workers respect the unique worth and inherent dignity of all people and uphold human rights.
- Social workers uphold each person's right to self-determination, consistent with that person's capacity and with the rights of others.
- Social workers respect the diversity among individuals in Canadian society and the right of individuals to their unique beliefs consistent with the rights of others.
- Social workers respect the client's right to make choices based on voluntary, informed consent.

- Social workers who have children as clients determine the child'sability to consent and where appropriate, explain to the child and to thechild's parents/guardians, the nature of the social worker's relationshipto the child.
- Social workers uphold the right of society to impose limitations on the self-determination of individuals, when such limitations protect individuals from self-harm and from harming others.
- Social workers uphold the right of every person to be free from violence and threat of violence.

Value 2: Pursuit of Social Justice

Social workers believe in the obligation of people, individually and collectively, to provide resources, services and opportunities for the overall benefit of humanity and to afford them protection from harm. Social workers promote social fairness and the equitable distribution of resources, and act to reduce barriers and expand choice for all persons, with special regard for those who are marginalized, disadvantaged, vulnerable, and/or have exceptional needs. Social workers opposeprejudice and discrimination against any person or group of persons, on any grounds, and specifically challenge views and actions that stereotype particular persons or groups.

Principles:

- Social workers uphold the right of people to have access to resources to meet basic human needs.
- Social workers advocate for fair and equitable access to public services and benefits.
- Social workers advocate for equal treatment and protection under the law and challenge injustices, especially injustices that affect the vulnerable and disadvantaged.
- Social workers promote social development and environmental management in the interests of all people.

Value 3: Service to Humanity

The social work profession upholds service in the interests of others,consistent with social justice, as a core professional objective. In professional practice, social workers balance individual needs, and rights and freedoms with collective interests in the service of humanity. When acting in a professional capacity, social workers place professional service

before personal goals or advantage, and use their power and authority in disciplined and responsible ways that serve society. The social work profession contributes to knowledge and skills that assist in the management of conflicts and the wide-ranging consequences of conflict.

Principles:

- Social workers place the needs of others above self-interest whenacting in a professional capacity.
- Social workers strive to use the power and authority vested in them as professionals in responsible ways that serve the needs of clients andthe promotion of social justice.
- Social workers promote individual development and pursuit of individual goals, as well as the development of a just society.
- Social workers use their knowledge and skills in bringing about fair resolutions to conflict and in assisting those affected by conflict.

Value 4: Integrity in Professional Practice

Social workers demonstrate respect for the profession's purpose, values and ethical principles relevant to their field of practice. Social workers maintain a high level of professional conduct by acting honestly andresponsibly, and promoting the values of the profession. Social workers strive for impartiality in their professional practice, and refrain from imposing their personal values, views and preferences on clients. It is the responsibility of social workers to establish the tenor of their professional relationship with clients, and others to whom they have a professional duty, and to maintain professional boundaries. As individuals, social workers take care in their actions to not bring the reputation of the profession into disrepute. An essential element of integrity in professional practice is ethical accountability based on this *Code of Ethics*, the IFSW *International Declaration of Ethical Principles of Social Work*, and other relevant provincial/territorial standards and guidelines. Where conflictsexist with respect to these sources of ethical guidance, social workers are encouraged to seek advice, including consultation with their regulatory body.

Principles:

- Social workers demonstrate and promote the qualities of honesty, reliability, impartiality and diligence in their professional practice.
- Social workers demonstrate adherence to the values and ethical principles of the profession and promote respect for the profession's values and principles in organizations where they work or with which they have a professional affiliation.
- Social workers establish appropriate boundaries in relationships with clients and ensure that the relationship serves the needs of clients.
- Social workers value openness and transparency in professional practice and avoid relationships where their integrity or impartiality may be compromised, ensuring that should a conflict of interest be unavoidable, the nature of the conflict is fully disclosed.

Value 5: Confidentiality in Professional Practice

A cornerstone of professional social work relationships is confidentiality with respect to all matters associated with professional services to clients. Social workers demonstrate respect for the trust and confidence placed in them by clients, communities and other professionals by protecting the privacy of client information and respecting the client's right to control when or whether this information will be shared with third parties. Social workers only disclose confidential information to other parties (including family members) with the informed consent of clients, clients' legally authorized representatives or when required by law or court order. The general expectation that social workers will keep information confidential does not apply when disclosure is necessary to prevent serious, foreseeable and imminent harm to a client or others. In all instances, socialworkers disclose the least amount of confidential information necessary to achieve the desired purpose.

Principles:

- Social workers respect the importance of the trust and confidenceplaced in the professional relationship by clients and members of the public.
- Social workers respect the client's right to confidentiality of information shared in a professional context.

- Social workers only disclose confidential information with theinformed consent of the client or permission of client's legal representative.
- Social workers may break confidentiality and communicate client information without permission when required or permitted by relevant laws, court order or this *Code*.
- Social workers demonstrate transparency with respect to limits to confidentiality that apply to their professional practice by clearly communicating these limitations to clients early in their relationship.

Value 6: Competence in Professional Practice

Social workers respect a client's right to competent social worker services. Social workers analyze the nature of social needs and problems, andencourage innovative, effective strategies and techniques to meet both newand existing needs and, where possible, contribute to the knowledge base of the profession. Social workers have a responsibility to maintain professional proficiency, to continually strive to increase their professional knowledge and skills, and to apply new knowledge in practice commensurate with their level of professional education, skill and competency, seeking consultation and supervision as appropriate.

Principles:

- Social workers uphold the right of clients to be offered the highest quality service possible.
- Social workers strive to maintain and increase their professional knowledge and skill.
- Social workers demonstrate due care for client's interests and safety by limiting professional practice to areas of demonstrated competence.
- Social workers contribute to the ongoing development of theprofession and its ability to serve humanity, where possible, by participating in the development of current and future social workers and the development of new professional knowledge.
- Social workers who engage in research minimize risks to participants, ensure informed consent, maintain confidentiality and accurately report the results of their studies.

Glossary

Capacity

The ability to understand information relevant to a decision and to appreciate the reasonably foreseeable consequences of choosing to act or not to act. Capacity is specific to each decision and thus a person may be capable of deciding about a place of residence, for example, but not capable with respect to deciding about a treatment. Capacity can change over time (Etchells, Sharpe, Elliot and Singer, 1996).

Recent references in law point to the concept of "a mature minor," which Rozovsky and Rozovsky (1990) define as "…one with capacity to understand the nature and consequences of medical treatment. Such a person has the power to consent to medical treatment and parental consent is not necessary" (p. 55). They quote the comments by The Honorable Justice Lambert in *Van Mol v. Ashmore*, which help clarify common law with respect to a minor's capacity to consent. He states:

> At common law, without reference to statute law, a young person, still a minor, may give, on his or her own behalf, a fully informed consent to medical treatment if he or she has sufficient maturity, intelligence and capacity of understanding what is involved in making informed choices about the proposed medical treatment…once the capacity to consent has been achieved by the young person reaching sufficient maturity, intelligence and capability of understanding, the discussions about the nature of the treatment, its gravity, the material risks and any special and unusual risks, and the decisions about undergoing treatment, and about the form of the treatment, must all take place with and be made by the young person whose bodily integrity is to be invaded and whose life and health will be affected by the outcome.

Child

The *Convention on the Rights of the Child* passed by the United Nations in 1959 and ratified by Canada in 1990, define a child as a person under the age of 18 years unless national law recognizes an earlier age of majority (Alberta Law Reform Institute, 1991). The age of majority differs in provinces and territories in Canada. Under the *Criminal Code of Canada*, the age of consent is held to be over the age of 14 years; age in the context of the criminal code frequently refers to capacity to consent to sexual relations. All jurisdictions in Canada have legislation regarding child protection, which defines the age of a child for the purposes of protection. In Canada, in the absence of provincial or territoriallegislation, courts are governed by common law. Social workers are encouraged

to maintain current knowledge with respect to legislation on the age of a child, aswell as capacity and consent in their jurisdiction.

Client

A person, family, group of persons, incorporated body, association or community on whose behalf a social worker provides or agrees to provide a service or to whom the social worker is legally obligated to provide a service. Examples of legal obligation to provide service include a legislated responsibility (such as in child welfare) or a valid court order. In the case of a valid court order, the judge/court is the client and the person(s) who is ordered by the court to participate in assessment is recognized as an involuntary client.

Conduct Unbecoming

Behaviour or conduct that does not meet social work standard of care requirements and is, therefore, subject to discipline. In reaching a decision in Matthews and Board of Directors of Physiotherapy (1986) 54 O.R. (2d) 375, Saunders J. makes three important statements regarding standards of practice, and by implication, professional codes of ethics:

1. Standards of practice are inherent characteristics of any profession.
2. Standards of practice may be written or unwritten.
3. Some conduct is clearly regarded as misconduct and need not be written down, whereas other conduct may be the subject of dispute within a profession.

(See "Standard of Practice.")

Confidentiality

A professional value that demands that professionally acquired information be kept private and not shared with third parties unless the client provides informed consent or a professional or legal obligation exists to share such information without client informed consent.

Discrimination

Treating people unfavourably or holding negative or prejudicial attitudes based on discernable differences or stereotypes (AASW, 1999).

Informed Consent

Voluntary agreement reached by a capable client based on information about foreseeable risks and benefits associated with the agreement (e.g., participation in counselling or agreement to disclose social work report to a third party).

Human Rights

The rights of an individual that are considered the basis for freedom and justice, and serve to protect people from discrimination and harassment. Social workers

may refer to the *Canadian Charter of Rights and Freedoms* enacted as ScheduleB to the *Canada Act* 1982 (U.K.) 1982, c. 11, which came into force on April 17, 1982, as well as the *Universal Declaration of Human Rights* (1948) proclaimedby the United Nations General Assembly December 10, 1948.

Malpractice and Negligence

Behaviour that is included in "conduct unbecoming" and relates to social work practice behaviour within the parameters of the professional relationship that falls below the standard of practice and results in, or aggravation of, injury to a client.It includes behaviour that results in assault, deceit, fraudulent misrepresentations, defamation of character, breach of contract, violation of human rights, malicious prosecution, false imprisonment or criminal conviction.

Self-Determination

A core social work value that refers to the right to self-direction and freedom of choice without interference from others. Self-determination is codified in practice through mechanisms of informed consent. Social workers may be obligated to limit self-determination when a client lacks capacity or in order to prevent harm (Regehr and Antle, 1997).

Social Worker

A person who is duly registered to practice social work in a province or territory; or where mandatory registration does not exist, a person with social work education from an institution recognized by the Canadian Association of Schools of Social Work (CASSW) or an institution from outside of Canada that has been approved by the CASW, who is practising social work and who voluntarily agreesto be subject to this *Code of Ethics*. **Note:** Social workers living in Quebec and British Columbia, whose social work education was obtained outside of Canada, follow a separate approval process within their respective provinces.

Standard of Practice

The standard of care ordinarily expected of a competent social worker. It means that the public is assured that a social worker has the training, the skill and the diligence to provide them with social work services. Social workers are urged to refer to standards of practice that have been set by their provincial or territorial regulatory body or relevant professional association (see "Conduct Unbecoming").

Voluntary

"In the context of consent, 'voluntariness' refers to a patient's right to make treatment decisions free of any undue influence, such as ability of others to exert control over a patient by force, coercion or manipulation. …The requirement for voluntariness does not imply that clinicians should refrain from persuading

patients to accept advice. Persuasion involves appealing to the patient's reason in an attempt to convince him or her of the merits of a recommendation. In attempting to persuade the patient to follow a particular course of action, the clinician still leaves the patient free to accept or reject this advice." (Etchells, Sharpe, Dykeman, Meslin and Singer, 1996, p. 1083).

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